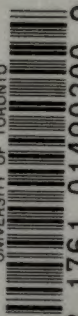
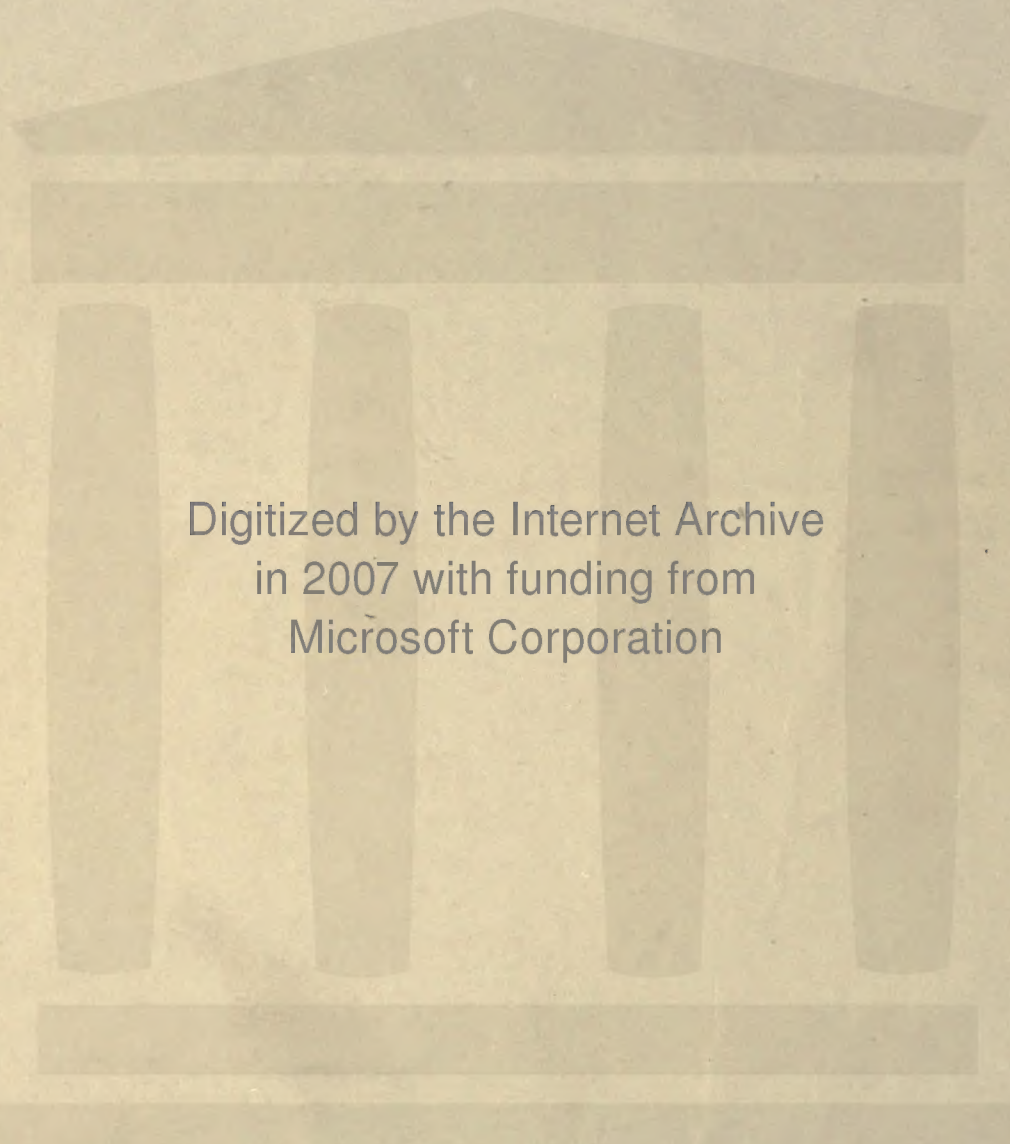


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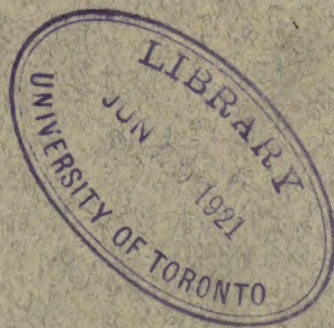
GEODESY

TABLES FOR A POLYCONIC PROJECTION OF MAPS

BASED UPON CLARKE'S REFERENCE
SPHEROID OF 1866

FOURTH EDITION

Special Publication No. 5



PRICE, 20 CENTS

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TABLES FOR THE PROJECTION OF MAPS BASED UPON A POLYCONIC DEVELOPMENT OF CLARKE'S SPHEROID OF 1866, AND COMPUTED FROM THE EQUATOR TO THE POLE.

INTRODUCTION.

These tables were published as Appendix 6 to the Coast and Geodetic Survey Report for 1884, and as Special Publication No. 5 in 1900. The constant demand for the tables has necessitated the present edition, in which the tables remain the same as those in the other editions, while this introductory is only slightly different from that of the second edition.

The tables here given for the construction of maps on the polyconic projection depend upon the dimensions of the spheroid representative of the earth's figure and size as determined by Col. A. R. Clarke, R. E., in 1866 and as expressed by him in meters. Prior to February, 1880, the work of the Survey was developed on Bessel's representative spheroid of 1841, and for which projection tables had been published in the annual reports for 1853, 1856, 1859, and 1865. The first publication, by E. B. Hunt, U. S. A., Assistant in the Survey, is accompanied by an exposition of the method; the second publication, by J. E. Hilgard, Assistant, specially provides for the projecting of maps of large extent, and received some further extension in 1859 and for a special case in 1865. These earlier publications were superseded in consequence of the change of the spheroid of development. The report of the Survey for 1880 contains a paper by C. A. Schott, Assistant, comparing the polyconic with other projections as to their relative practical values, and a special publication of the Survey in 1882, by T. Craig, Ph. D., develops the mathematical principles upon which the various forms of projections depend and exhibits their special properties. The projection tables of 1884 were edited by C. O. Boutelle, Assistant in charge of the Office, and are in a most complete form for use for maps of any scale.*

The two spheroids of reference referred to, with their dimensions expressed in meters, compare as follows:

	According to Bessel (1841).	According to Clarke (1866).
Equatorial radius a	6 377 397'2	6 378 206'4
Polar semi-axis b	6 356 079'0	6 356 583'8
b/a	298'15/299'15	293'98/294'98

Originally the dimensions of the Besselian spheroid were expressed in toises, those of Clarke's spheroid in English standard feet. Their metric equivalents as adopted at the time and here given could not now be considered as representing the best comparisons.† According to Clarke (1866):

The toise equals 76'734 402 inches=1'949 036 32 meters.

The meter equals 39'370 432 inches=3'280 869 33 feet.*

whereas we find now the more correct relation to the international meter somewhere between 39.369 87 and 39.370 08 inches;‡ the value 39.369 90 inches is the result by the Weights and Measures Bureau, presented in Appendix No.

* Projection tables for the use of the United States Navy were published by the Bureau of Navigation, Navy Department, Washington, 1869. They are adapted to areas of small and large extent, refer to Bessel's spheroid, and use the metric system. The latest publication of tables on polyconic projection is by the Smithsonian Institution, "Geographical Tables," prepared by R. S. Woodward, Smithsonian Miscellaneous Collections 854, Washington, the third edition of which was published in 1906. Clarke's spheroid of 1866, as expressed in feet, is employed. Coordinates for the projection of maps on several different scales are given in both inches and millimeters. The United States Geological Survey published in 1908 "Geographic Tables and Formulas," compiled by Samuel S. Gannett, Geographer, which contains Polyconic Projection Tables, most of which are extracts from "Geographic Tables" of the Smithsonian Institution and from Appendix 6, Coast and Geodetic Survey Report for 1884.

† Comparisons of standards of lengths, etc., made at the Ordnance Office at Southampton by Capt. A. R. Clarke, London, 1866, p. 287.

‡ Die Europäische Längengradmessung in 52° Breite. Berlin, 1893, pp. 225-230.

UNITED STATES COAST AND GEODETIC SURVEY.

LENGTHS OF DEGREES OF THE PARALLEL.

Lat.	Meters.	Yards.	Statute miles.	Nautical miles.	Lat.	Meters.	Yards.	Statute miles.	Nautical miles.	Lat.	Meters.	Yards.	Statute miles.	Nautical miles.
0 /					0 /					0 /				
0 00	111 321	121 742	69.172	60.068	30 00	96 488	105 520	59.956	52.064	60 00	55 802	61 026	34.674	30.110
30	1 316	1 736	9.169	0.065	30	6 001	4 988	9.653	1.801	30	4 958	0 103	4.150	29.654
1 00	1 304	1 723	9.162	0.059	31 00	5 506	4 446	9.345	1.534	61 00	4 110	59 175	3.623	9.197
30	1 283	1 700	9.149	0.047	30	5 004	3 897	9.033	1.264	30	3 257	8 242	3.093	9.737
2 00	1 253	1 668	9.130	0.031	32 00	4 495	3 341	8.716	0.989	62 00	2 400	7 305	2.560	8.275
30	111 215	121 626	69.106	60.011	30	93 979	102 776	58.396	50.710	30	51 540	56 365	32.025	27.811
3 00	1 169	1 576	9.078	59.986	33 00	3 455	2 203	8.071	0.428	63 00	0 675	5 419	1.488	7.344
30	1 114	1 516	9.044	9.956	30	2 925	1 624	7.741	0.142	30	49 806	4 468	0.948	6.875
4 00	1 051	1 447	9.005	9.922	34 00	2 387	1 035	7.407	49.851	64 00	8 934	3 515	0.406	6.404
30	0 980	1 369	8.960	9.884	30	1 842	100 439	7.068	9.557	30	8 057	2 556	29.862	5.931
5 00	110 900	121 281	68.911	59.840	35 00	91 290	99 836	56.725	49.259	65 00	47 177	51 593	29.315	25.456
30	0 812	1 185	8.856	9.793	30	0 731	9 224	6.378	8.958	30	6 294	0 628	8.766	4.979
6 00	0 715	1 079	8.795	9.741	36 00	0 166	8 607	6.027	8.653	66 00	5 407	49 658	8.215	4.501
30	0 610	0 964	8.730	9.684	30	89 593	7 980	5.671	8.344	30	4 516	8 683	7.661	4.021
7 00	0 497	0 841	8.660	9.622	37 00	9 014	7 347	5.311	8.031	67 00	3 622	7 706	7.106	3.538
30	110 375	120 707	68.585	59.557	30	88 428	96 706	54.947	47.715	30	42 724	46 723	26.548	23.053
8 00	0 245	0 565	8.504	9.487	38 00	7 835	6 057	4.579	7.395	68 00	1 823	5 738	5.988	2.567
30	0 106	0 413	8.418	9.412	30	7 235	5 401	4.206	7.071	30	0 919	4 750	5.426	2.079
9 00	109 959	0 252	8.326	9.333	39 00	6 629	4 738	3.829	6.744	69 00	0 012	3 758	4.862	1.590
30	9 804	120 083	8.230	9.249	30	6 016	4 068	3.448	6.413	30	39 102	2 762	4.297	1.099
10 00	109 641	119 905	68.129	59.161	40 00	85 396	93 390	53.063	46.079	70 00	38 188	41 763	23.729	20.606
30	9 469	9 717	8.022	9.068	30	4 770	2 705	2.674	5.741	30	7 272	0 761	3.160	0.112
11 00	9 289	9 520	7.910	8.971	41 00	4 137	2 013	2.281	5.399	71 00	6 353	39 756	2.589	19.616
30	9 101	9 314	7.793	8.870	30	3 498	1 314	1.884	5.054	30	5 431	8 748	2.016	9.118
12 00	8 904	9 099	7.670	8.764	42 00	2 853	90 609	1.483	4.706	72 00	4 506	7 736	1.441	8.619
30	108 699	118 874	67.543	58.653	30	82 201	89 896	51.078	44.355	30	33 578	36 721	20.865	18.119
13 00	8 486	8 641	7.410	8.538	43 00	1 543	9 176	0.669	4.000	73 00	2 648	5 704	0.287	7.617
30	8 265	8 400	7.273	8.419	30	0 879	8 450	0.257	3.642	30	1 716	4 685	19.708	7.114
14 00	8 036	8 149	7.131	8.295	44 00	0 208	7 716	49.840	3.280	74 00	0 781	3 662	9.127	6.609
30	7 798	7 889	6.983	8.167	30	79 532	6 977	9.419	2.915	30	29 843	2 637	8.544	6.103
15 00	107 553	117 621	66.830	58.034	45 00	78 849	86 230	48.995	42.546	75 00	28 903	31 609	17.960	15.596
30	7 299	7 343	6.672	7.897	30	8 160	5 477	8.567	2.175	30	7 961	0 578	7.374	5.088
16 00	7 036	7 056	6.510	7.756	46 00	7 466	4 718	8.136	1.801	76 00	7 017	29 546	6.788	4.578
30	6 766	6 760	6.342	7.610	30	6 765	3 951	7.700	1.423	30	6 071	8 512	6.200	4.067
17 00	6 487	6 455	6.169	7.459	47 00	6 058	3 178	7.261	1.041	77 00	5 123	7 475	5.611	3.556
30	106 201	116 143	65.991	57.305	30	75 346	82 400	46.818	40.656	30	24 172	26 435	15.020	13.043
18 00	5 906	5 820	5.808	7.146	48 00	4 628	1 614	6.372	0.268	78 00	3 220	5 394	4.428	2.529
30	5 604	5 490	5.620	6.983	30	3 904	0 822	5.922	39.877	30	2 266	4 350	3.836	2.014
19 00	5 294	5 151	5.427	6.816	49 00	3 174	0 024	5.469	9.484	79 00	1 311	3 306	3.242	1.499
30	4 975	4 801	5.229	6.644	30	2 439	79 220	5.012	9.088	30	20 353	2 258	2.647	0.983
20 00	104 649	114 445	65.026	56.468	50 00	71 698	78 410	44.552	38.688	80 00	19 394	21 210	12.051	10.465
30	4 314	4 079	4.818	6.287	30	0 952	7 594	4.088	8.285	30	8 434	0 160	1.455	9.947
21 00	3 972	3 705	4.606	6.102	51 00	0 200	6 771	3.621	7.880	81 00	7 472	19 108	0.857	9.428
30	3 622	3 322	4.389	5.913	30	69 443	5 944	3.150	7.472	30	6 509	8 054	10.258	8.908
22 00	3 264	2 931	4.166	5.720	52 00	8 680	5 109	2.676	7.060	82 00	5 545	7 000	9.659	8.388
30	102 898	112 530	63.938	55.523	30	67 913	74 270	42.199	36.646	30	14 579	15 944	9.059	7.867
23 00	2 524	2 121	3.706	5.321	53 00	7 140	3 425	1.719	6.229	83 00	3 612	4 886	8.458	7.345
30	2 143	1 705	3.469	5.115	30	6 361	2 573	1.235	5.809	30	2 644	3 828	7.857	6.823
24 00	1 754	1 279	3.228	4.905	54 00	5 578	1 717	0.749	5.386	84 00	1 675	2 768	7.255	6.300
30	1 357	0 845	2.981	4.691	30	4 790	70 855	40.259	4.960	30	10 706	1 708	6.652	5.776
25 00	100 952	110 402	62.729	54.473	55 00	63 996	69 987	39.766	34.532	85 00	9 735	10 646	6.049	5.253
30	0 539	109 951	2.473	4.250	30	3 198	9 114	9.270	4.101	30	8 764	9 584	5.446	4.729
26 00	0 119	9 491	2.212	4.024	56 00	2 395	8 236	8.771	3.668	86 00	7 792	8 521	4.842	4.205
30	99 692	9 024	1.946	3.793	30	1 587	7 362	8.269	3.232	30	6 819	7 457	4.237	3.680
27 00	9 257	8 549	1.676	3.558	57 00	60 774	6 463	7.764	2.794	87 00	5 846	6 393	3.632	3.154
30	98 814	108 064	61.401	53.319	30	59 957	65 570	37.256	32.353	30	4 872	5 328	3.027	2.629
28 00	8 364	7 572	1.122	3.076	58 00	9 135	4 671	6.745	1.909	88 00	3 898	4 263	2.422	2.103
30	7 906	7 071	0.837	2.829	30	8 309	3 767	6.232	1.463	30	2 924	3 198	1.817	1.578
29 00	7 441	6 563	0.548	2.578	59 00	7 478	2 859	5.716	1.015	89 00	1 949	2 131	1.211	1.052
30	6 968	6 045	60.254	2.323	30	6 642	1 944	5.196	0.564	30	975	1 066	0.606	0.526
30 00	96 488	105 520	59.956	52.064	60 00	55 802	61 026	34.674	30.110	90 00	0	0	0	0

POLYCONIC PROJECTION TABLES.

7

LENGTHS OF DEGREES OF THE MERIDIAN.

Lat.	Meters.*	Yards.	Statute miles.	Nautical miles.	Lat.	Meters.*	Yards.	Statute miles.	Nautical miles.
0					0				
0-1	110 567.3	120 917.6	68.703	59.661	45-46	111 140.8	121 544.8	69.060	59.971
1-2	110 568.0	120 918.4	68.704	59.662	46-47	111 160.5	121 566.4	69.072	59.981
2-3	110 569.4	120 919.9	68.705	59.662	47-48	111 180.2	121 587.9	69.084	59.992
3-4	110 571.4	120 922.1	68.706	59.664	48-49	111 199.9	121 609.4	69.096	60.003
4-5	110 574.1	120 925.1	68.707	59.665	49-50	111 219.5	121 630.9	69.108	60.013
5-6	110 577.6	120 928.9	68.710	59.667	50-51	111 239.0	121 652.2	69.121	60.024
6-7	110 581.6	120 933.3	68.712	59.669	51-52	111 258.3	121 673.3	69.133	60.034
7-8	110 586.4	120 938.5	68.715	59.672	52-53	111 277.6	121 694.4	69.145	60.045
8-9	110 591.8	120 944.4	68.718	59.675	53-54	111 296.6	121 715.2	69.156	60.055
9-10	110 597.8	120 951.0	68.722	59.678	54-55	111 315.4	121 735.8	69.168	60.065
10-11	110 604.5	120 958.3	68.726	59.681	55-56	111 334.0	121 756.1	69.180	60.075
11-12	110 611.9	120 966.4	68.731	59.685	56-57	111 352.4	121 776.2	69.191	60.085
12-13	110 619.8	120 975.0	68.736	59.690	57-58	111 370.5	121 796.0	69.202	60.095
13-14	110 628.4	120 984.4	68.741	59.694	58-59	111 388.4	121 815.6	69.213	60.104
14-15	110 637.6	120 994.5	68.747	59.699	59-60	111 405.9	121 834.7	69.224	60.114
15-16	110 647.5	121 005.3	68.753	59.705	60-61	111 423.1	121 853.5	69.235	60.123
16-17	110 657.8	121 016.6	68.759	59.710	61-62	111 439.9	121 871.9	69.246	60.132
17-18	110 668.8	121 028.6	68.766	59.716	62-63	111 456.4	121 890.0	69.256	60.141
18-19	110 680.4	121 041.3	68.773	59.722	63-64	111 472.4	121 907.5	69.266	60.150
19-20	110 692.4	121 054.4	68.781	59.729	64-65	111 488.1	121 924.6	69.275	60.158
20-21	110 705.1	121 068.3	68.789	59.736	65-66	111 503.3	121 941.2	69.285	60.166
21-22	110 718.2	121 082.7	68.797	59.743	66-67	111 518.0	121 957.3	69.294	60.174
22-23	110 731.8	121 097.5	68.805	59.750	67-68	111 532.3	121 973.0	69.303	60.182
23-24	110 746.0	121 113.1	68.814	59.758	68-69	111 546.2	121 988.2	69.311	60.190
24-25	110 760.6	121 129.0	68.823	59.765	69-70	111 559.5	122 002.7	69.320	60.197
25-26	110 775.6	121 145.4	68.833	59.774	70-71	111 572.2	122 016.6	69.328	60.204
26-27	110 791.1	121 162.4	68.842	59.782	71-72	111 584.5	122 030.0	69.335	60.210
27-28	110 807.0	121 179.8	68.852	59.791	72-73	111 596.2	122 042.8	69.343	60.217
28-29	110 823.3	121 197.6	68.862	59.800	73-74	111 607.3	122 055.0	69.349	60.223
29-30	110 840.0	121 215.9	68.873	59.808	74-75	111 617.9	122 066.6	69.356	60.228
30-31	110 857.0	121 234.4	68.883	59.818	75-76	111 627.8	122 077.4	69.362	60.234
31-32	110 874.4	121 253.5	68.894	59.827	76-77	111 637.1	122 087.6	69.368	60.239
32-33	110 892.1	121 272.8	68.905	59.837	77-78	111 645.9	122 097.2	69.373	60.243
33-34	110 910.1	121 292.5	68.916	59.846	78-79	111 653.9	122 105.9	69.378	60.248
34-35	110 928.3	121 312.4	68.928	59.856	79-80	111 661.4	122 114.1	69.383	60.252
35-36	110 946.9	121 332.8	68.939	59.866	80-81	111 668.2	122 121.6	69.387	60.255
36-37	110 965.6	121 353.2	68.951	59.876	81-82	111 674.4	122 128.4	69.391	60.259
37-38	110 984.5	121 373.9	68.962	59.886	82-83	111 679.9	122 134.4	69.395	60.262
38-39	111 003.7	121 394.9	68.974	59.897	83-84	111 684.7	122 139.6	69.398	60.264
39-40	111 023.0	121 416.0	68.986	59.907	84-85	111 688.9	122 144.2	69.400	60.268
40-41	111 042.4	121 437.2	68.998	59.918	85-86	111 692.3	122 147.9	69.402	60.268
41-42	111 061.9	121 458.5	69.011	59.928	86-87	111 695.1	122 151.0	69.404	60.270
42-43	111 081.6	121 480.1	69.023	59.939	87-88	111 697.2	122 153.3	69.405	60.271
43-44	111 101.3	121 501.6	69.035	59.949	88-89	111 698.6	122 154.8	69.406	60.272
44-45	111 121.0	121 523.2	69.047	59.960	89-90	111 699.3	122 155.6	69.407	60.272

*The quantities in this column are identical with those on the odd-numbered pages in the body of the table at the bottom of the column headed 'Continuous sums of minutes.'

CONSTRUCTION OF POLYCONIC PROJECTIONS.

Having the location to be covered by a projection, determine the scale and the interval of the projection lines which will be most suitable for the work in hand.

SMALL SCALE PROJECTIONS (1-500,000 AND SMALLER).

Draw a straight line for a central meridian and a construction line ($a b$ in the figure) perpendicular thereto, each to be as central to the sheet as the selected interval of latitude and longitude will permit.

On this central meridian and from its intersection with the construction line lay off the extreme intervals of latitude, north and south (mm_2 and mm_4) and subdivide the intervals for each parallel (m_1 and m_3) to be represented, all distances* being taken from the table (p. 7, "Lengths of degrees of the meridian").

Through each of the points (m_1, m_2, m_3, m_4) on the central meridian draw additional construction lines (cd, ef, gh, if) perpendicular to the central meridian, and mark off the ordinates ($x, x_1, x_2, x_3, x_4, x_5$) from the central meridian corresponding to the values* of "X" taken from the table under "Coordinates of curvature" (pp. 11 to 189), for every meridian to be represented.

At the points ($x, x_1, x_2, x_3, x_4, x_5$) lay off from each of the construction lines the corresponding values* of "Y"† from the table under "Coordinates of curvature" (pp. 11 to 189), in a direction parallel to the central meridian, above the construction lines if north of the equator, to determine points on the meridians and parallels.

Draw curved lines through the points thus determined for the meridians and parallels of the projection.

LARGE SCALE PROJECTIONS (1-10,000 AND LARGER).

The above method can be much simplified in constructing a projection on a large scale. Draw the central meridian and the construction line $a b$, as directed above. On the central meridian lay off the distances* mm_2 and mm_4 taken from the table under "Continuous sums of minutes" for the intervals in minutes between the middle parallel and the extreme parallels to be represented, and through the points m_2 and m_4 draw straight lines $c d$ and $e f$ parallel to the line $a b$. On the lines $a b, c d$, and $e f$ lay off the distances* $m x_5, m_2 x_5$, and $m_4 x_5$ on both sides of the central meridian, taking the values from the table under "Arcs of the parallel in meters" corresponding to the latitude of the points m, m_2 , and m_4 , respectively. Draw straight lines through the points thus determined, x_5 , for the extreme meridians.

At the points x_5 on the line $a b$ lay off the value* of Y corresponding to the intervals in minutes between the central and the extreme meridians, as given in the table under "Coordinates of curvature," in a direction parallel with the central meridian and above the line, if north of the equator, to determine points in the central parallel. Draw straight lines from these points to the point m for the middle parallel, and from the points of intersection with the extreme meridians lay off distances* on the extreme meridians, above and below, equal to the distances mm_2 and mm_4 to locate points in the extreme parallels.

Subdivide the three meridians and three parallels into parts corresponding to the projection interval and join the corresponding points of subdivision by straight lines to complete the projection.

To construct a projection on an intermediate scale, follow the method given for small projections to the extent required to give the desired accuracy.

* The lengths of the arcs of the meridians and parallels change when the latitude changes and *all distances* must be taken from the table opposite the latitude of the point in use.

† Approximate method of deriving the values of y intermediate between those shown in the table.

The ratio of any two successive ordinates of curvature, expressed in meters, equals the ratio of the squares of the corresponding abscissæ expressed in minutes or degrees.

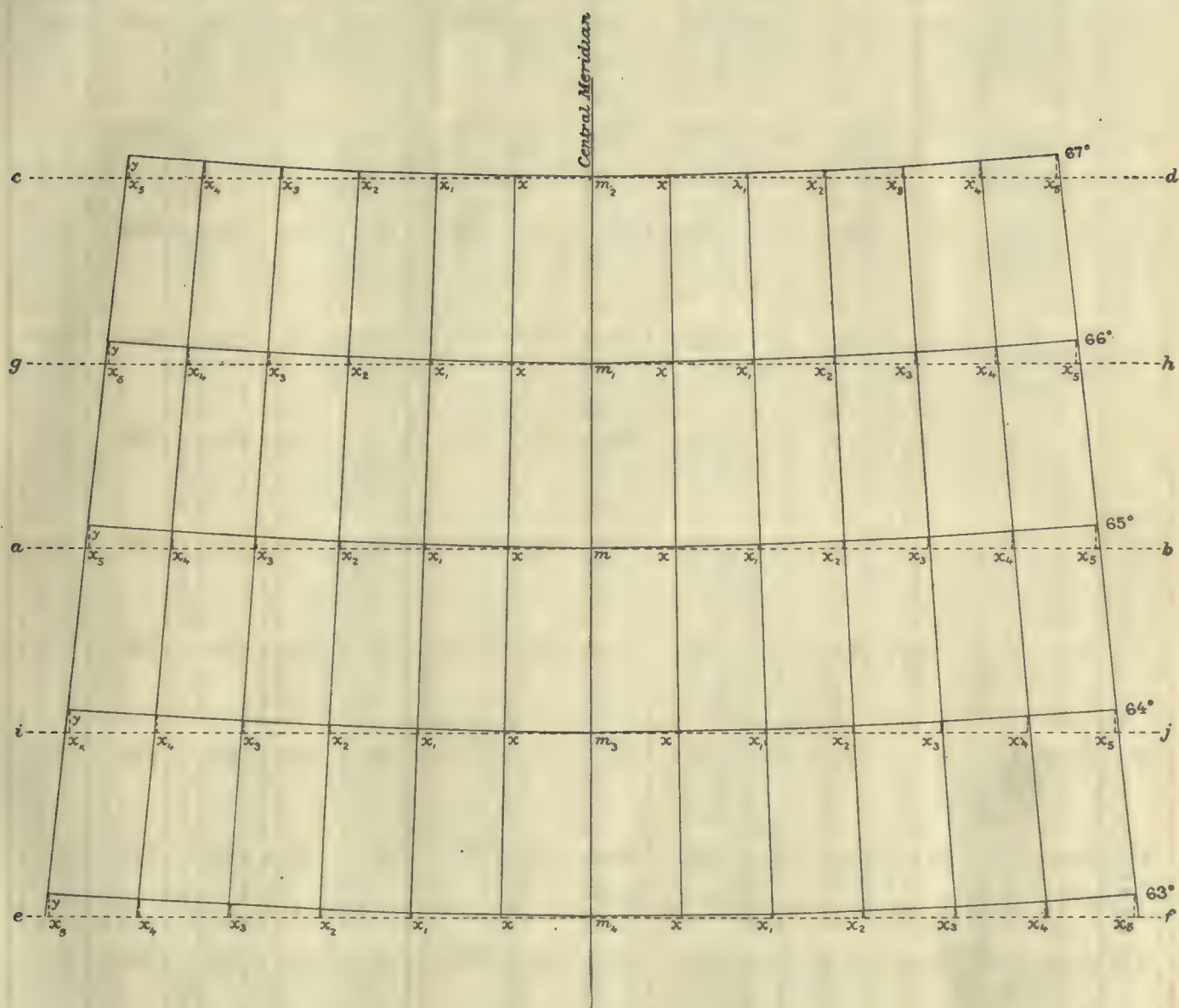
Examples.—Latitude 60° to 61° . Given the value of y for longitude $50', 292.^m8$ (see table), to obtain the value of y for longitude $55'$.

$$\frac{(55)^2}{(50)^2} = \frac{y}{292.8}; \text{ hence } y = 354.^m3 \text{ (see table).}$$

Similarly, y for $3^\circ = 3795^m$.

$$\frac{4^2}{3^2} = \frac{y}{3795}; \text{ hence } y \text{ for } 4^\circ = 6747^m,$$

which differs 2^m from the tabular value, a negligible quantity for the intermediate values of y under most conditions.



Latitude 0° to 1°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
0°														
0° 00'	30.922	61.84	92.77	123.69	154.61	185.53	216.46	247.38	278.30	1855.3	3710.7	5566.0	7421.4	9276.7
1	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
2	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
3	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
4	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
0° 05'	30.922	61.84	92.77	123.69	154.61	185.53	216.46	247.38	278.30	1855.3	3710.7	5566.0	7421.4	9276.7
6	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
7	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
8	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
9	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
0° 10'	30.922	61.84	92.77	123.69	154.61	185.53	216.46	247.38	278.30	1855.3	3710.7	5566.0	7421.3	9276.7
11	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.3	6.7
12	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.3	6.7
13	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.3	6.7
14	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.3	6.7
0° 15'	30.922	61.84	92.77	123.69	154.61	185.53	216.45	247.38	278.30	1855.3	3710.7	5566.0	7421.3	9276.6
16	.922	.84	.77	.69	.61	.53	.45	.38	.30	5.3	0.7	6.0	1.3	6.6
17	.922	.84	.77	.69	.61	.53	.45	.38	.30	5.3	0.6	6.0	1.3	6.6
18	.922	.84	.77	.69	.61	.53	.45	.38	.30	5.3	0.6	6.0	1.3	6.6
19	.922	.84	.77	.69	.61	.53	.45	.38	.30	5.3	0.6	6.0	1.3	6.6
0° 20'	30.922	61.84	92.77	123.69	154.61	185.53	216.45	247.38	278.30	1855.3	3710.6	5565.9	7421.2	9276.6
21	.922	.84	.77	.69	.61	.53	.45	.37	.30	5.3	0.6	5.9	1.2	6.6
22	.922	.84	.77	.69	.61	.53	.45	.37	.30	5.3	0.6	5.9	1.2	6.5
23	.922	.84	.77	.69	.61	.53	.45	.37	.30	5.3	0.6	5.9	1.2	6.5
24	.922	.84	.77	.69	.61	.53	.45	.37	.30	5.3	0.6	5.9	1.2	6.5
0° 25'	30.922	61.84	92.76	123.68	154.61	185.53	216.45	247.37	278.30	1855.3	3710.6	5565.9	7421.2	9276.5
26	.922	.84	.76	.68	.61	.53	.45	.37	.29	5.3	0.6	5.9	1.2	6.5
27	.921	.84	.76	.68	.61	.53	.45	.37	.29	5.3	0.6	5.9	1.1	6.4
28	.921	.84	.76	.68	.61	.53	.45	.37	.29	5.3	0.6	5.9	1.1	6.4
29	.921	.84	.76	.68	.61	.53	.45	.37	.29	5.3	0.6	5.8	1.1	6.4
0° 30'	30.921	61.84	92.76	123.68	154.61	185.53	216.45	247.37	278.29	1855.3	3710.5	5565.8	7421.1	9276.4
31	.921	.84	.76	.68	.61	.53	.45	.37	.29	5.3	0.5	5.8	1.1	6.4
32	.921	.84	.76	.68	.61	.53	.45	.37	.29	5.3	0.5	5.8	1.0	6.3
33	.921	.84	.76	.68	.61	.53	.45	.37	.29	5.3	0.5	5.8	1.0	6.3
34	.921	.84	.76	.68	.60	.53	.45	.37	.29	5.3	0.5	5.8	1.0	6.3
0° 35'	30.921	61.84	92.76	123.68	154.60	185.52	216.45	247.37	278.29	1855.2	3710.5	5565.7	7421.0	9276.3
36	.921	.84	.76	.68	.60	.52	.44	.37	.29	5.2	0.5	5.7	1.0	6.2
37	.921	.84	.76	.68	.60	.52	.44	.36	.29	5.2	0.5	5.7	1.0	6.2
38	.921	.84	.76	.68	.60	.52	.44	.36	.29	5.2	0.5	5.7	0.9	6.2
39	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.5	5.7	0.9	6.1
0° 40'	30.920	61.84	92.76	123.68	154.60	185.52	216.44	247.36	278.28	1855.2	3710.4	5565.7	7420.9	9276.1
41	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.4	5.6	0.9	6.1
42	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.4	5.6	0.8	6.0
43	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.4	5.6	0.8	6.0
44	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.4	5.6	0.8	6.0
0° 45'	30.920	61.84	92.76	123.68	154.60	185.52	216.44	247.36	278.28	1855.2	3710.4	5565.6	7420.7	9275.9
46	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.4	5.5	0.7	5.9
47	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.3	5.5	0.7	5.9
48	.919	.84	.76	.68	.60	.52	.44	.36	.28	5.2	0.3	5.5	0.7	5.8
49	.919	.84	.76	.68	.60	.52	.44	.35	.27	5.2	0.3	5.5	0.6	5.8
0° 50'	30.919	61.84	92.76	123.68	154.60	185.51	216.43	247.35	278.27	1855.1	3710.3	5565.4	7420.6	9275.7
51	.919	.84	.76	.68	.60	.51	.43	.35	.27	5.1	0.3	5.4	0.6	5.7
52	.919	.84	.76	.68	.59	.51	.43	.35	.27	5.1	0.3	5.4	0.5	5.7
53	.919	.84	.76	.68	.59	.51	.43	.35	.27	5.1	0.3	5.4	0.5	5.6
54	.919	.84	.76	.67	.59	.51	.43	.35	.27	5.1	0.2	5.4	0.5	5.6
0° 55'	30.918	61.84	92.76	123.67	154.59	185.51	216.43	247.35	278.27	1855.1	3710.2	5565.3	7420.4	9275.5
56	.918	.84	.75	.67	.59	.51	.43	.35	.27	5.1	0.2	5.3	0.4	5.5
57	.918	.84	.75	.67	.59	.51	.43	.35	.26	5.1	0.2	5.3	0.4	5.5
58	.918	.84	.75	.67	.59	.51	.43	.34	.26	5.1	0.2	5.2	0.3	5.4
59	.918	.84	.75	.67	.59	.51	.43	.34	.26	5.1	0.1	5.2	0.3	5.4
0° 60'	30.918	61.84	92.75	123.67	154.59	185.51	216.42	247.34	278.26	1855.1	3710.1	5565.2	7420.3	9275.3

Lat.	Latitude 0° to 1°—Meridional arcs.						Latitude 0°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 0° 30'		Value of 1'	Continuous sums of minutes from latitude 0° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
0 00	30.713			1842.79	1	1842.8	0 1	1855.3	0.0
1	3	1	30.71	.79	2	3685.6	0 2	3710.7	
2	3	2	61.43	.79	3	5528.4	0 3	5566.0	
3	3	3	92.14	.79	4	7371.1	0 4	7421.4	
4	3	4	122.85	.79	5	9213.9	0 5	9276.7	0.0
0 05	30.713	5	153.56	1842.79	6	11056.7	0 6	11132.1	
5	3	6	184.28	.79	7	12899.5	0 7	12987.4	
6	3	7	214.99	.79	8	14742.3	0 8	14842.8	
7	3	8	245.70	.79	9	16585.1	0 9	16698.1	
8	3	9	276.42	.79	10	18427.9	0 10	18553.4	0.0
9	3	10	307.13	.79	11	20270.7	0 15	27830.2	
0 10	30.713	11	337.84	.79	12	22113.4	0 20	37106.9	
11	3	12	368.56	.79	13	23956.2	0 25	46383.6	
12	3	13	399.27	.79	14	25799.0	0 30	55660.3	
13	3	14	429.98	.79	15	27641.8	0 35	64937.1	0.0
0 15	30.713	15	460.69	1842.79	16	29484.6	0 40	74213.8	
16	3	16	491.41	.79	17	31327.4	0 45	83490.5	
17	3	17	522.12	.79	18	33170.2	0 50	92767.2	
18	3	18	552.83	.79	19	35013.0	0 55	102044.0	
19	3	19	583.55	.79	20	36855.8	1 00	111320.7	0.0
0 20	30.713	20	614.26	1842.79	21	38698.5	1 05	120597.4	
21	3	21	644.97	.79	22	40541.3	1 10	129874.1	
22	3	22	675.69	.79	23	42384.1	1 15	139150.9	
23	3	23	706.40	.79	24	44226.9	1 20	148427.6	
24	3	24	737.11	.79	25	46069.7	1 25	157704.3	0.0
0 25	30.713	25	767.82	1842.79	26	47912.5	1 30	166981.0	
26	3	26	798.54	.79	27	49755.3	1 35	176257.8	
27	3	27	829.25	.79	28	51598.1	1 40	185534.5	
28	3	28	859.96	.79	29	53440.9	1 45	194811.2	
29	3	29	890.68	.79	30	55283.6	1 50	204087.9	0.0
0 30	30.713	30	921.39	1842.79	31	57126.4	1 55	213364.7	
31	3	31	952.10	.79	32	58969.2	2 00	222641	
32	3	32	982.82	.79	33	60812.0	2 05	231917.8	
33	3	33	1013.53	.79	34	62654.8	2 10	241194.5	
34	3	34	1044.24	.79	35	64497.6	2 15	250471.2	
0 35	30.713	35	1074.95	1842.79	36	66340.4	2 20	259747.9	0.0
36	3	36	1105.67	.79	37	68183.2	2 25	269024.6	
37	3	37	1136.38	.79	38	70026.0	2 30	278301.3	
38	3	38	1167.09	.79	39	71868.7	2 35	287578.0	
39	3	39	1197.81	.79	40	73711.5	2 40	296854.7	
0 40	30.713	40	1228.52	1842.79	41	75554.3	2 45	306131.4	0.0
41	3	41	1259.23	.79	42	77397.1	2 50	315408.1	
42	3	42	1289.95	.79	43	79239.9	2 55	324684.8	
43	3	43	1320.66	.79	44	81082.7	3 00	333961.5	
44	3	44	1351.37	.79	45	82925.5	3 05	343238.2	
0 45	30.713	45	1382.08	1842.79	46	84768.3	3 10	352514.9	0.0
46	3	46	1412.80	.79	47	86611.0	3 15	361791.6	
47	3	47	1443.51	.79	48	88453.8	3 20	371068.3	
48	3	48	1474.22	.79	49	90296.6	3 25	380345.0	
49	3	49	1504.94	.79	50	92139.4	3 30	389621.7	
0 50	30.713	50	1535.65	1842.79	51	93982.2	3 35	398898.4	0.0
51	3	51	1566.36	.79	52	95825.0	3 40	408175.1	
52	3	52	1597.08	.79	53	97667.8	3 45	417451.8	
53	3	53	1627.79	.79	54	99510.6	3 50	426728.5	
54	3	54	1658.50	.79	55	101353.4	3 55	436005.2	
0 55	30.713	55	1689.21	1842.79	56	103196.2	4 00	445281.9	0.0
56	3	56	1719.93	.79	57	105039.0	4 05	454558.6	
57	3	57	1750.64	.79	58	106881.7	4 10	463835.3	
58	3	58	1781.35	.79	59	108724.5	4 15	473112.0	
59	3	59	1812.07	.79	60	110567.3	4 20	482388.7	
0 60	30.713	60	1842.79	1842.79			4 25	491665.4	0.0

Latitude 1° to 2°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
0 0	30.918	61.84	92.75	123.67	154.59	185.51	216.42	247.34	278.26	1855.1	3710.1	5565.2	7420.3	9275.3
1	.918	.84	.75	.67	.59	.51	.42	.34	.26	5.1	0.1	5.2	0.2	5.3
2	.917	.83	.75	.67	.59	.50	.42	.34	.26	5.0	0.1	5.1	0.2	5.2
3	.917	.83	.75	.67	.59	.50	.42	.34	.26	5.0	0.1	5.1	0.1	5.2
4	.917	.83	.75	.67	.59	.50	.42	.34	.25	5.0	0.0	5.1	0.1	5.1
1 05	30.917	61.83	92.75	123.67	154.58	185.50	216.42	247.34	278.25	1855.0	3710.0	5565.0	7420.1	9275.1
6	.917	.83	.75	.67	.58	.50	.42	.33	.25	5.0	0.0	5.0	0.0	5.0
7	.917	.83	.75	.67	.58	.50	.42	.33	.25	5.0	0.0	5.0	0.0	5.0
8	.916	.83	.75	.67	.58	.50	.41	.33	.25	5.0	10.0	5.0	19.9	4.9
9	.916	.83	.75	.66	.58	.50	.41	.33	.24	5.0	9.9	4.9	9.9	4.9
1 10	30.916	61.83	92.75	123.66	154.58	185.50	216.41	247.33	278.24	1855.0	3709.9	5564.9	7419.9	9274.8
11	.916	.83	.75	.66	.58	.50	.41	.33	.24	5.0	9.9	4.9	9.8	4.8
12	.916	.83	.75	.66	.58	.49	.41	.33	.24	4.9	9.9	4.8	9.8	4.7
13	.915	.83	.75	.66	.58	.49	.41	.32	.24	4.9	9.8	4.8	9.7	4.6
14	.915	.83	.75	.66	.58	.49	.41	.32	.24	4.9	9.8	4.8	9.7	4.6
1 15	30.915	61.83	92.75	123.66	154.58	185.49	216.41	247.32	278.24	1854.9	3709.8	5564.7	7419.6	9274.5
16	.915	.83	.74	.66	.57	.49	.40	.32	.23	4.9	9.8	4.7	9.6	4.5
17	.915	.83	.74	.66	.57	.49	.40	.32	.23	4.9	9.8	4.6	9.5	4.4
18	.915	.83	.74	.66	.57	.49	.40	.32	.23	4.9	9.7	4.6	9.5	4.4
19	.914	.83	.74	.66	.57	.49	.40	.31	.23	4.9	9.7	4.6	9.4	4.3
1 20	30.914	61.83	92.74	123.66	154.57	185.48	216.40	247.31	278.23	1854.8	3709.7	5564.5	7419.4	9274.2
21	.914	.83	.74	.66	.57	.48	.40	.31	.23	4.8	9.7	4.5	9.3	4.2
22	.914	.83	.74	.65	.57	.48	.40	.31	.22	4.8	9.6	4.5	9.3	4.1
23	.913	.83	.74	.65	.57	.48	.39	.31	.22	4.8	9.6	4.4	9.2	4.0
24	.913	.83	.74	.65	.57	.48	.39	.31	.22	4.8	9.6	4.4	9.2	4.0
1 25	30.913	61.83	92.74	123.65	154.57	185.48	216.39	247.30	278.22	1854.8	3709.6	5564.3	7419.1	9273.9
26	.913	.83	.74	.65	.56	.48	.39	.30	.22	4.8	9.5	4.3	9.1	3.8
27	.913	.83	.74	.65	.56	.48	.39	.30	.21	4.8	9.5	4.3	9.0	3.8
28	.912	.82	.74	.65	.56	.47	.39	.30	.21	4.7	9.5	4.2	9.0	3.7
29	.912	.82	.74	.65	.56	.47	.38	.30	.21	4.7	9.5	4.2	8.9	3.6
1 30	30.912	61.82	92.74	123.65	154.56	185.47	216.38	247.30	278.21	1854.7	3709.4	5564.1	7418.9	9273.6
31	.912	.82	.73	.65	.56	.47	.38	.29	.20	4.7	9.4	4.1	8.8	3.5
32	.911	.82	.73	.65	.56	.47	.38	.29	.20	4.7	9.4	4.1	8.8	3.4
33	.911	.82	.73	.64	.56	.47	.38	.29	.20	4.7	9.3	4.0	8.7	3.4
34	.911	.82	.73	.64	.55	.47	.38	.29	.20	4.7	9.3	4.0	8.6	3.3
1 35	30.911	61.82	92.73	123.64	154.55	185.46	216.37	247.29	278.20	1854.6	3709.3	5563.9	7418.6	9273.2
36	.910	.82	.73	.64	.55	.46	.37	.28	.19	4.6	9.2	3.9	8.5	3.1
37	.910	.82	.73	.64	.55	.46	.37	.28	.19	4.6	9.2	3.8	8.4	3.1
38	.910	.82	.73	.64	.55	.46	.37	.28	.19	4.6	9.2	3.8	8.4	3.0
39	.910	.82	.73	.64	.55	.46	.37	.28	.19	4.6	9.2	3.7	8.3	2.9
1 40	30.909	61.82	92.73	123.64	154.55	185.46	216.37	247.28	278.18	1854.6	3709.1	5563.7	7418.3	9272.8
41	.909	.82	.73	.64	.55	.45	.36	.27	.18	4.5	9.1	3.6	8.2	2.7
42	.909	.82	.73	.64	.54	.45	.36	.27	.18	4.5	9.0	3.6	8.1	2.7
43	.909	.82	.73	.63	.54	.45	.36	.27	.18	4.5	9.0	3.6	8.1	2.6
44	.908	.82	.73	.63	.54	.45	.36	.27	.18	4.5	9.0	3.5	8.0	2.5
1 45	30.908	61.82	92.72	123.63	154.54	185.45	216.36	247.26	278.17	1854.5	3708.9	5563.5	7417.9	9272.4
46	.908	.82	.72	.63	.54	.45	.35	.26	.17	4.5	8.9	3.4	7.9	2.3
47	.908	.82	.72	.63	.54	.45	.35	.26	.17	4.5	8.9	3.4	7.8	2.3
48	.907	.81	.72	.63	.54	.44	.35	.26	.17	4.4	8.9	3.3	7.7	2.2
49	.907	.81	.72	.63	.53	.44	.35	.26	.16	4.4	8.8	3.3	7.7	2.1
1 50	30.907	61.81	92.72	123.63	154.53	185.44	216.35	247.25	278.16	1854.4	3708.8	5563.2	7417.6	9272.0
51	.906	.81	.72	.63	.53	.44	.34	.25	.16	4.4	8.8	3.1	7.5	1.9
52	.906	.81	.72	.62	.53	.44	.34	.25	.15	4.4	8.7	3.1	7.4	1.8
53	.906	.81	.72	.62	.53	.43	.34	.25	.15	4.3	8.7	3.0	7.4	1.7
54	.906	.81	.72	.62	.53	.43	.34	.24	.15	4.3	8.7	3.0	7.3	1.7
1 55	30.905	61.81	92.72	123.62	154.53	185.43	216.34	247.24	278.15	1854.3	3708.6	5562.9	7417.3	9271.6
56	.905	.81	.71	.62	.52	.43	.33	.24	.14	4.3	8.6	2.9	7.2	1.5
57	.905	.81	.71	.62	.52	.43	.33	.24	.14	4.3	8.5	2.8	7.1	1.4
58	.904	.81	.71	.62	.52	.43	.33	.23	.14	4.3	8.5	2.8	7.0	1.3
59	.904	.81	.71	.62	.52	.42	.33	.23	.14	4.2	8.5	2.7	7.0	1.2
1 60	30.904	61.81	92.71	123.61	154.52	185.42	216.33	247.23	278.13	1854.2	3708.4	5562.7	7416.9	9271.1

Lat.	Latitude 1° to 2°—Meridional arcs.						Latitude 1°—Co-ordinates of curvature.		
	Value of 1'	Sums of seconds for middle latitude 1° 30'		Value of 1'	Continuous sums of minutes from latitude 1° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters
1 00	30.713			1842.79			0 1	1 855.1	0.0
1 1	3	1	30.71	.79	1	1 842.8	0 2	3 710.1	0.0
1 2	3	2	61.43	.79	2	3 685.6	0 3	5 565.2	0.0
1 3	3	3	92.14	.79	3	5 528.4	0 4	7 420.3	0.1
1 4	3	4	122.85	.79	4	7 371.2	0 5	9 275.3	0.1
1 05	30.713	5	153.57	1842.79	5	9 214.0	0 6	11 130.4	0.2
1 6	3	6	184.28	.79	6	11 056.8	0 7	12 985.4	0.2
1 7	3	7	215.00	.79	7	12 899.6	0 8	14 840.5	0.3
1 8	3	8	245.71	.79	8	14 742.3	0 9	16 695.6	0.4
1 9	3	9	276.42	.79	9	16 585.1			
1 10	30.713	10	307.14	1842.79	10	18 427.9	0 10	18 550.6	0.5
1 11	3	11	337.85	.79	11	20 270.7	0 15	27 826.0	1.1
1 12	3	12	368.56	.80	12	22 113.5	0 20	37 101.3	1.9
1 13	3	13	399.28	.80	13	23 956.3	0 25	46 376.6	2.9
1 14	3	14	429.99	.80	14	25 799.1	0 30	55 651.9	4.2
1 15	30.713	15	460.70	1842.80	15	27 641.9	0 35	64 927.2	5.8
1 16	3	16	491.42	.80	16	29 484.7	0 40	74 202.5	7.5
1 17	3	17	522.13	.80	17	31 327.5	0 45	83 477.8	9.5
1 18	3	18	552.84	.80	18	33 170.3	0 50	92 753.2	11.7
1 19	3	19	583.56	.80	19	35 013.1	0 55	102 028.5	14.2
1 20	30.713	20	614.27	1842.80	20	36 855.9	1 00	111 303.7	16.9
1 21	3	21	644.98	.80	21	38 698.7	05	120 579.0	19.9
1 22	3	22	675.70	.80	22	40 541.5	10	129 854.3	23.0
1 23	3	23	706.41	.80	23	42 384.3	15	139 129.6	26.4
1 24	3	24	737.12	.80	24	44 227.1	20	148 404.9	30.1
1 25	30.713	25	767.84	1842.80	25	46 069.9	1 25	157 680.2	34.0
1 26	3	26	798.55	.80	26	47 912.7	30	166 955.5	38.1
1 27	3	27	829.26	.80	27	49 755.5	35	176 230.8	42.4
1 28	3	28	859.98	.80	28	51 598.3	40	185 506.1	47.0
1 29	3	29	890.69	.80	29	53 441.1	45	194 781.4	51.8
1 30	30.713	30	921.40	1842.80	30	55 283.9	1 50	204 056.7	56.9
1 31	3	31	952.12	.80	31	57 126.7	55	213 331.9	62.2
1 32	3	32	982.83	.80	32	58 969.5	2 00	222 607	68
1 33	3	33	1 013.54	.80	33	60 812.3	3 00	333 911	153
1 34	3	34	1 044.26	.80	34	62 655.1	4 00	445 214	271
1 35	30.713	35	1 074.97	1842.80	35	64 497.9	5 00	556 518	424
1 36	3	36	1 105.68	.80	36	66 340.7	6 00	667 822	610
1 37	3	37	1 136.40	.80	37	68 183.5	7 00	779 126	831
1 38	3	38	1 167.11	.80	38	70 026.3	8 00	890 429	1 085
1 39	3	39	1 197.82	.80	39	71 869.1	9 00	1 001 733	1 373
1 40	30.713	40	1 228.54	1842.80	40	73 711.9	10 00	1 113 037	1 695
1 41	3	41	1 259.25	.80	41	75 554.7	11 00	1 224 340	2 051
1 42	3	42	1 289.96	.80	42	77 397.5	12 00	1 335 643	2 441
1 43	3	43	1 320.68	.80	43	79 240.3	13 00	1 446 946	2 865
1 44	3	44	1 351.39	.81	44	81 083.1	14 00	1 558 249	3 323
1 45	30.713	45	1 382.10	1842.81	45	82 925.9	15 00	1 669 551	3 814
1 46	3	46	1 412.82	.81	46	84 768.7	16 00	1 780 854	4 340
1 47	3	47	1 443.53	.81	47	86 611.5	17 00	1 892 157	4 899
1 48	3	48	1 474.24	.81	48	88 454.3	18 00	2 003 459	5 492
1 49	3	49	1 504.96	.81	49	90 297.1	19 00	2 114 761	6 120
1 50	30.713	50	1 535.67	1842.81	50	92 139.9	20 00	2 226 063	6 781
1 51	3	51	1 566.38	.81	51	93 982.7	21 00	2 337 364	7 476
1 52	3	52	1 597.10	.81	52	95 825.6	22 00	2 448 666	8 205
1 53	3	53	1 627.81	.81	53	97 668.4	23 00	2 559 967	8 967
1 54	3	54	1 658.52	.81	54	99 511.2	24 00	2 671 268	9 764
1 55	30.713	55	1 689.23	1842.81	55	101 354.0	25 00	2 782 569	10 595
1 56	3	56	1 719.95	.81	56	103 196.8	26 00	2 893 869	11 459
1 57	3	57	1 750.66	.81	57	105 039.6	27 00	3 005 170	12 358
1 58	3	58	1 781.37	.81	58	106 882.4	28 00	3 116 470	13 290
1 59	3	59	1 812.09	.81	59	108 725.2	29 00	3 227 770	14 256
1 60	30.713	60	1 842.80	1842.81	60	110 568.0	30 00	3 339 070	15 256

Latitude 2° to 3°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
0														
2 00	30.904	61.81	92.71	123.61	154.52	185.42	216.33	247.23	278.13	1854.2	3708.4	5562.7	7416.9	9271.1
1	.903	.81	.71	.61	.52	.42	.33	.23	.13	4.2	8.4	2.6	6.8	1.0
2	.903	.81	.71	.61	.52	.42	.32	.22	.12	4.2	8.3	2.6	6.7	0.9
3	.903	.81	.71	.61	.51	.41	.32	.22	.12	4.1	8.3	2.5	6.7	0.8
4	.902	.81	.71	.61	.51	.41	.32	.22	.12	4.1	8.2	2.5	6.6	0.7
2 05	30.902	61.81	92.71	123.61	154.51	185.41	216.31	247.21	278.11	1854.1	3708.2	5562.4	7416.5	9270.6
6	.902	.80	.70	.60	.51	.41	.31	.21	.11	4.1	8.2	2.3	6.4	0.5
7	.901	.80	.70	.60	.51	.41	.31	.21	.11	4.1	8.2	2.3	6.3	0.4
8	.901	.80	.70	.60	.50	.40	.31	.21	.11	4.0	8.1	2.2	6.3	0.3
9	.901	.80	.70	.60	.50	.40	.30	.20	.10	4.0	8.1	2.2	6.2	0.2
2 10	30.900	61.80	92.70	123.60	154.50	185.40	216.30	247.20	278.10	1854.0	3708.1	5562.1	7416.1	9270.1
11	.900	.80	.70	.60	.50	.40	.30	.20	.10	4.0	8.0	2.0	6.0	70.0
12	.900	.80	.70	.60	.50	.40	.30	.20	.09	4.0	8.0	2.0	5.9	69.9
13	.899	.80	.70	.60	.50	.39	.29	.19	.09	3.9	7.9	1.9	5.9	9.8
14	.899	.80	.70	.60	.50	.39	.29	.19	.09	3.9	7.9	1.9	5.8	9.7
2 15	30.899	61.80	92.70	123.60	154.50	185.39	216.29	247.19	278.08	1853.9	3707.8	5561.8	7415.7	9269.6
16	.898	.79	.69	.59	.49	.39	.29	.19	.08	3.9	7.8	1.7	5.6	9.5
17	.898	.79	.69	.59	.49	.39	.29	.19	.08	3.9	7.7	1.7	5.5	9.4
18	.898	.79	.69	.59	.49	.38	.28	.18	.08	3.8	7.7	1.6	5.5	9.3
19	.897	.79	.69	.59	.49	.38	.28	.18	.07	3.8	7.6	1.6	5.4	9.2
2 20	30.897	61.79	92.69	123.59	154.49	185.38	216.28	247.18	278.07	1853.8	3707.6	5561.5	7415.3	9269.1
21	.897	.79	.69	.59	.49	.38	.28	.18	.07	3.8	7.6	1.4	5.2	9.0
22	.896	.79	.69	.59	.48	.38	.27	.17	.06	3.8	7.5	1.3	5.1	8.9
23	.896	.79	.69	.58	.48	.37	.27	.17	.06	3.7	7.5	1.3	5.0	8.7
24	.895	.79	.69	.58	.48	.37	.27	.17	.06	3.7	7.4	1.2	4.9	8.6
2 25	30.895	61.79	92.69	123.58	154.48	185.37	216.26	247.16	278.05	1853.7	3707.4	5561.1	7414.8	9268.5
26	.895	.79	.68	.58	.48	.37	.26	.16	.05	3.7	7.4	1.0	4.7	8.4
27	.894	.79	.68	.58	.48	.37	.26	.16	.05	3.7	7.3	1.0	4.6	8.3
28	.894	.79	.68	.57	.47	.36	.26	.16	.05	3.6	7.3	0.9	4.6	8.2
29	.894	.79	.68	.57	.47	.36	.25	.15	.04	3.6	7.2	0.9	4.5	8.1
2 30	30.893	61.79	92.68	123.57	154.47	185.36	216.25	247.15	278.04	1853.6	3707.2	5560.8	7414.4	9268.0
31	.893	.79	.68	.57	.47	.36	.25	.15	.04	3.6	7.1	0.7	4.3	7.9
32	.892	.79	.68	.57	.47	.35	.24	.14	.03	3.5	7.1	0.6	4.2	7.7
33	.892	.79	.68	.57	.46	.35	.24	.14	.03	3.5	7.0	0.6	4.0	7.6
34	.891	.79	.67	.57	.46	.35	.24	.13	.02	3.5	7.0	0.5	3.9	7.4
2 35	30.891	61.79	92.67	123.57	154.46	185.35	216.23	247.13	278.02	1853.5	3706.9	5560.4	7413.8	9267.3
36	.891	.78	.67	.56	.46	.34	.23	.13	.02	3.4	6.9	0.3	3.7	7.2
37	.890	.78	.67	.56	.46	.34	.23	.12	.01	3.4	6.8	0.2	3.6	7.1
38	.890	.78	.67	.56	.45	.34	.23	.12	.01	3.4	6.8	0.2	3.6	6.9
39	.889	.78	.67	.56	.45	.33	.22	.11	.00	3.3	6.7	0.1	3.5	6.8
2 40	30.889	61.78	92.67	123.56	154.45	185.33	216.22	247.11	278.00	1853.3	3706.7	5560.0	7413.4	9266.7
41	.889	.78	.67	.56	.45	.33	.22	.11	8.00	3.3	6.6	59.9	3.3	6.6
42	.888	.78	.67	.56	.44	.33	.21	.10	7.99	3.3	6.6	9.8	3.2	6.5
43	.888	.78	.66	.55	.44	.32	.21	.10	.99	3.2	6.5	9.8	3.0	6.3
44	.887	.78	.66	.55	.44	.32	.21	.10	.98	3.2	6.5	9.7	2.9	6.2
2 45	30.887	61.78	92.66	123.55	154.43	185.32	216.20	247.09	277.98	1853.2	3706.4	5559.6	7412.8	9266.1
46	.887	.77	.66	.55	.43	.32	.20	.09	.98	3.2	6.4	9.5	2.7	6.0
47	.886	.77	.66	.55	.43	.32	.20	.09	.97	3.2	6.3	9.5	2.6	5.9
48	.886	.77	.66	.54	.43	.31	.20	.09	.97	3.1	6.3	9.4	2.6	5.7
49	.885	.77	.66	.54	.42	.31	.19	.08	.96	3.1	6.2	9.4	2.5	5.6
2 50	30.885	61.77	92.65	123.54	154.42	185.31	216.19	247.08	277.96	1853.1	3706.2	5559.3	7412.4	9265.5
51	.884	.77	.65	.54	.42	.31	.19	.08	.96	3.1	6.1	9.2	2.3	5.3
52	.884	.77	.65	.54	.42	.31	.18	.07	.95	3.0	6.1	9.1	2.2	5.2
53	.883	.77	.65	.53	.41	.30	.18	.07	.95	3.0	6.0	9.1	2.0	5.0
54	.883	.77	.65	.53	.41	.30	.18	.06	.94	3.0	6.0	9.0	1.9	4.9
2 55	30.882	61.77	92.65	123.53	154.41	185.29	216.17	247.06	277.94	1852.9	3705.9	5558.9	7411.8	9264.7
56	.882	.76	.65	.53	.41	.29	.17	.06	.94	2.9	5.8	8.8	1.7	4.6
57	.882	.76	.64	.53	.41	.29	.17	.05	.93	2.9	5.8	8.7	1.6	4.5
58	.881	.76	.64	.52	.40	.29	.17	.05	.93	2.9	5.7	8.7	1.5	4.3
59	.881	.76	.64	.52	.40	.28	.16	.04	.92	2.8	5.7	8.6	1.4	4.2
2 60	30.880	61.76	92.64	123.52	154.40	185.28	216.16	247.04	277.92	1852.8	3705.6	5558.5	7411.3	9264.1

Lat.	Latitude 2° to 3°—Meridional arcs.						Latitude 2°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 2° 30'		Value of 1'	Continuous sums of minutes from latitude 2° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
2 00	30.714			1842.81					
1	4	1	30.71	.81	1	1 842.8	0 1	1 854.2	
2	4	2	61.43	.81	2	3 685.6	2	3 708.4	
3	4	3	92.14	.81	3	5 528.4	3	5 562.7	0.1
4	4	4	122.86	.81	4	7 371.2	4	7 416.9	0.2
2 5	30.714	5	153.57	1842.81	5	9 214.1	0 5	9 271.1	0.2
6	4	6	184.28	.81	6	11 056.9	6	11 125.3	0.3
7	4	7	215.00	.81	7	12 899.7	7	12 979.6	0.5
8	4	8	245.71	.81	8	14 742.5	8	14 833.8	0.6
9	4	9	276.43	.81	9	16 585.3	9	16 688.0	0.8
2 10	30.714	10	307.14	1842.81	10	18 428.1	0 10	18 542.2	0.9
11	4	1	337.85	.81	1	20 270.9	15	27 813.3	2.1
12	4	2	368.57	.81	2	22 113.8	20	37 084.4	3.8
13	4	3	399.28	.81	3	23 956.6	25	46 355.6	5.9
14	4	4	430.00	.81	4	25 799.4	30	55 626.7	8.5
2 15	30.714	15	460.71	1842.82	15	27 642.2	0 35	64 897.8	11.5
16	4	6	491.42	.82	6	29 485.0	40	74 168.9	15.0
17	4	7	522.14	.82	7	31 327.8	45	83 440.0	19.0
18	4	8	552.85	.82	8	33 170.7	50	92 711.1	23.5
19	4	9	583.57	.82	9	35 013.5	55	101 982.2	28.4
2 20	30.714	20	614.28	1842.82	20	36 856.3	1 00	111 253.4	33.9
21	4	1	644.99	.82	1	38 699.1	05	120 524.5	39.8
22	4	2	675.71	.82	2	40 541.9	10	129 795.6	46.1
23	4	3	706.42	.82	3	42 384.8	15	139 066.7	52.9
24	4	4	737.14	.82	4	44 227.6	20	148 337.8	60.2
2 25	30.714	25	767.85	1842.82	25	46 070.4	1 25	157 608.9	68.0
26	4	5	798.56	.82	5	47 913.2	30	166 880.0	76.2
27	4	7	829.28	.82	7	49 756.0	35	176 151.1	84.9
28	4	8	859.99	.82	8	51 598.9	40	185 422.2	94.1
29	4	9	890.71	.82	9	53 441.7	45	194 693.3	103.8
2 30	30.714	30	921.41	1842.82	30	55 284.5	1 50	203 964.5	113.9
31	4	1	952.13	.82	1	57 127.3	55	213 235.6	124.5
32	4	2	982.85	.82	2	58 970.1	2 00	222 506	136
33	4	3	1 013.56	.82	3	60 813.0	3 00	333 759	305
34	4	4	1 044.28	.82	4	62 655.8	4 00	445 012	542
2 35	30.714	35	1 074.99	1842.83	35	64 498.6	5 00	556 266	847
36	4	6	1 105.70	.83	6	66 341.5	6 00	667 517	1 220
37	4	7	1 136.42	.83	7	68 184.3	7 00	778 770	1 660
38	4	8	1 167.13	.83	8	70 027.1	8 00	890 023	2 169
39	4	9	1 197.85	.83	9	71 869.9	9 00	1 001 275	2 745
2 40	30.714	40	1 228.56	1842.83	40	73 712.8	10 00	1 112 527	3 388
41	4	1	1 259.27	.83	1	75 555.6	11 00	1 223 778	4 100
42	4	2	1 289.99	.83	2	77 398.4	12 00	1 335 028	4 879
43	4	3	1 320.70	.83	3	79 241.3	13 00	1 446 278	5 726
44	4	4	1 351.42	.83	4	81 084.1	14 00	1 557 528	6 641
2 45	30.714	45	1 382.13	1842.83	45	82 926.9	15 00	1 668 778	7 624
46	4	6	1 412.84	.83	6	84 769.8	16 00	1 780 027	8 674
47	4	7	1 443.56	.83	7	86 612.6	17 00	1 891 275	9 792
48	4	8	1 474.27	.83	8	88 455.4	18 00	2 002 522	10 978
49	4	9	1 504.99	.83	9	90 298.2	19 00	2 113 768	12 232
2 50	30.714	50	1 535.70	1842.83	50	92 141.1	20 00	2 225 012	13 553
51	4	1	1 566.41	.83	1	93 983.9	21 00	2 336 257	14 942
52	4	2	1 597.13	.84	2	95 826.7	22 00	2 447 501	16 399
53	4	3	1 627.84	.84	3	97 669.5	23 00	2 558 744	17 923
54	4	4	1 658.56	.84	4	99 512.4	24 00	2 669 986	19 515
2 55	30.714	55	1 689.27	1842.84	55	101 355.2	25 00	2 781 227	21 176
56	4	6	1 719.98	.84	6	103 198.0	26 00	2 892 466	22 904
57	4	7	1 750.70	.84	7	105 041.9	27 00	3 003 705	24 700
58	4	8	1 781.41	.84	8	106 883.7	28 00	3 114 943	26 563
59	4	9	1 812.13	.84	9	108 726.5	29 00	3 226 179	28 494
2 60	30.714	60	1 842.82	1842.84	60	110 569.4	30 00	3 337 415	30 494

Latitude 3° to 4°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
3 00	30.880	61.76	92.64	123.52	154.40	185.28	216.16	247.04	277.92	1852.8	3705.6	5558.5	7411.3	9264.1
1	.880	.76	.64	.52	.40	.28	.16	.04	.92	2.8	5.5	8.4	1.2	4.0
2	.879	.76	.64	.52	.40	.28	.15	.03	.91	2.8	5.5	8.3	1.1	3.8
3	.879	.76	.64	.51	.39	.27	.15	.03	.91	2.7	5.4	8.2	0.9	3.7
4	.878	.76	.64	.51	.39	.27	.15	.02	.90	2.7	5.4	8.1	0.8	3.5
3 05	30.878	61.76	92.63	123.51	154.39	185.27	216.14	247.02	277.90	1852.7	3705.3	5558.0	7410.7	9263.4
6	.878	.75	.63	.51	.39	.27	.14	.02	.90	2.7	5.3	7.9	0.6	3.3
7	.877	.75	.63	.51	.39	.26	.14	.01	.89	2.6	5.2	7.8	0.5	3.1
8	.877	.75	.63	.50	.38	.26	.14	.01	.89	2.6	5.2	7.8	0.3	3.0
9	.876	.75	.63	.50	.38	.25	.13	.00	.88	2.5	5.1	7.7	0.2	2.8
3 10	30.876	61.75	92.63	123.50	154.38	185.25	216.13	247.00	277.88	1852.5	3705.1	5557.6	7410.1	9262.7
11	.875	.75	.63	.50	.38	.25	.13	7.00	.88	2.5	5.0	7.5	10.0	2.5
12	.875	.75	.62	.50	.37	.25	.12	6.99	.87	2.5	5.0	7.4	09.9	2.4
13	.874	.75	.62	.49	.37	.24	.12	.99	.87	2.4	4.9	7.4	9.7	2.2
14	.874	.75	.62	.49	.37	.24	.11	.98	.86	2.4	4.9	7.3	9.6	2.1
3 15	30.873	61.75	92.62	123.49	154.36	185.24	216.11	246.98	277.86	1852.4	3704.8	5557.2	7409.5	9261.9
16	.872	.74	.62	.49	.36	.23	.11	.98	.85	2.3	4.7	7.1	9.4	1.7
17	.872	.74	.62	.49	.36	.23	.10	.97	.85	2.3	4.7	7.0	9.3	1.6
18	.871	.74	.61	.48	.36	.23	.10	.97	.84	2.3	4.6	6.9	9.1	1.4
19	.871	.74	.61	.48	.35	.22	.09	.96	.84	2.2	4.6	6.8	9.0	1.3
3 20	30.870	61.74	92.61	123.48	154.35	185.22	216.09	246.96	277.83	1852.2	3704.5	5556.7	7408.9	9261.1
21	.870	.74	.61	.48	.35	.22	.09	.96	.83	2.2	4.4	6.6	8.8	1.0
22	.869	.74	.61	.48	.35	.22	.08	.95	.82	2.2	4.3	6.5	8.7	0.8
23	.869	.74	.61	.47	.34	.21	.08	.95	.82	2.1	4.3	6.4	8.5	0.7
24	.868	.74	.61	.47	.34	.21	.08	.94	.81	2.1	4.2	6.3	8.4	0.5
3 25	30.868	61.74	92.60	123.47	154.34	185.21	216.07	246.94	277.81	1852.1	3704.1	5556.2	7408.3	9260.4
26	.867	.73	.60	.47	.34	.20	.07	.94	.81	2.1	4.0	6.1	8.2	0.2
27	.867	.73	.60	.47	.34	.20	.07	.93	.80	2.0	4.0	6.0	8.0	60.0
28	.866	.73	.60	.46	.33	.20	.07	.93	.80	2.0	3.9	5.9	7.9	59.9
29	.866	.73	.60	.46	.33	.19	.06	.92	.79	1.9	3.9	5.8	7.7	9.7
3 30	30.865	61.73	92.60	123.46	154.33	185.19	216.06	246.92	277.79	1851.9	3703.8	5555.7	7407.6	9259.5
31	.864	.73	.59	.46	.33	.19	.06	.92	.79	1.9	3.7	5.6	7.5	9.3
32	.864	.73	.59	.46	.32	.18	.05	.91	.78	1.8	3.7	5.5	7.4	9.2
33	.863	.73	.59	.45	.32	.18	.05	.91	.78	1.8	3.6	5.4	7.2	9.0
34	.863	.73	.59	.45	.32	.18	.04	.90	.77	1.7	3.6	5.3	7.1	8.9
3 35	30.862	61.73	92.59	123.45	154.31	185.17	216.04	246.90	277.77	1851.7	3703.5	5555.2	7407.0	9258.7
36	.862	.72	.59	.45	.31	.17	.04	.90	.76	1.7	3.4	5.1	6.9	8.5
37	.861	.72	.58	.45	.31	.17	.03	.89	.76	1.7	3.3	5.0	6.7	8.4
38	.861	.72	.58	.44	.31	.17	.03	.89	.75	1.6	3.3	4.9	6.6	8.2
39	.860	.72	.58	.44	.30	.16	.02	.88	.75	1.6	3.2	4.8	6.4	8.1
3 40	30.860	61.72	92.58	123.44	154.30	185.16	216.02	246.88	277.74	1851.6	3703.1	5554.7	7406.3	9257.9
41	.859	.72	.58	.44	.30	.16	.02	.88	.73	1.6	3.0	4.6	6.2	7.7
42	.858	.72	.58	.43	.29	.15	.01	.87	.73	1.5	3.0	4.5	6.0	7.5
43	.858	.71	.57	.43	.29	.15	.01	.87	.72	1.5	2.9	4.4	5.9	7.4
44	.857	.71	.57	.43	.29	.14	.00	.86	.72	1.4	2.9	4.3	5.7	7.2
3 45	30.857	61.71	92.57	123.42	154.28	185.14	216.00	246.86	277.71	1851.4	3702.8	5554.2	7405.6	9257.0
46	.856	.71	.57	.42	.28	.14	6.00	.85	.70	1.4	2.7	4.1	5.5	6.8
47	.855	.71	.57	.42	.28	.13	5.99	.85	.70	1.3	2.6	4.0	5.3	6.6
48	.855	.70	.57	.42	.28	.13	.99	.84	.69	1.3	2.6	3.9	5.1	6.5
49	.854	.70	.56	.41	.27	.12	.98	.84	.69	1.2	2.5	3.8	5.0	6.3
3 50	30.854	61.70	92.56	123.41	154.27	185.12	215.98	246.83	277.68	1851.2	3702.4	5553.7	7404.9	9256.1
51	.853	.70	.56	.41	.27	.12	.98	.83	.68	1.2	2.3	3.6	4.8	5.9
52	.852	.70	.56	.41	.26	.11	.97	.82	.67	1.1	2.3	3.5	4.6	5.7
53	.852	.70	.56	.40	.26	.11	.97	.82	.67	1.1	2.2	3.3	4.5	5.6
54	.851	.70	.55	.40	.26	.11	.96	.81	.66	1.0	2.2	3.2	4.3	5.4
3 55	30.851	61.70	92.55	123.40	154.25	185.10	215.96	246.81	277.66	1851.0	3702.1	5553.1	7404.2	9255.2
56	.850	.70	.55	.40	.25	.10	.95	.80	.65	1.0	2.0	3.0	4.0	5.0
57	.849	.70	.55	.40	.25	.10	.95	.80	.65	1.0	1.9	2.9	3.9	4.8
58	.849	.70	.55	.39	.25	.10	.94	.79	.64	0.9	1.9	2.8	3.7	4.7
59	.848	.70	.54	.39	.24	.09	.94	.79	.64	0.9	1.8	2.7	3.6	4.5
3 60	30.848	61.70	92.54	123.39	154.24	185.09	215.93	246.78	277.63	1850.9	3701.7	5552.6	7403.4	9254.3

POLYCONIC PROJECTION TABLES.

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		Latitude 3° to 4°—Meridional arcs.					Latitude 3°—Co-ordinates of curvature.		
Lat.		Value of 1"	Sums of seconds for middle latitude 3° 30'		Value of 1'	Continuous sums of minutes from latitude 3° 00'	Longitude.	X	Y
° ' "	Meters.	"	Meters.		Meters.	'	Meters.	° ' "	Meters.
3 00	30.714				1842.84			0 1	1 852.8
1	4	1	30.71	.84	.84	1	1 842.8	0 2	3 705.6
2	4	2	61.43	.84	.84	2	3 685.7	3	5 558.4
3	4	3	92.14	.84	.84	3	5 528.5	4	7 411.3
4	4	4	122.86	.84	.84	4	7 371.4	5	9 264.1
3 05	30.714	5	153.57	1842.84	.84	5	9 214.2	0 5	11 116.9
6	4	6	184.29	.84	.84	6	11 057.0	6	12 969.7
7	4	7	215.00	.84	.84	7	12 899.9	7	14 822.5
8	4	8	245.71	.84	.84	8	14 742.7	8	16 675.3
9	4	9	276.43	.84	.84	9	16 585.6	9	
3 10	30.714	10	307.14	1842.84	.85	10	18 428.4	0 10	18 528.1
11	4	1	337.86	.85	.85	1	20 271.3	15	27 792.3
12	4	2	368.57	.85	.85	2	22 114.1	20	37 056.4
13	4	3	399.29	.85	.85	3	23 957.0	25	46 320.5
14	4	4	430.00	.85	.85	4	25 799.8	30	55 584.6
3 15	30.714	15	460.71	1842.85	.85	15	27 642.7	0 35	64 848.7
16	4	6	491.43	.85	.85	6	29 485.5	40	74 112.8
17	4	7	522.14	.85	.85	7	31 328.4	45	83 376.9
18	4	8	552.86	.85	.85	8	33 171.2	50	92 641.1
19	4	9	583.57	.85	.85	9	35 014.1	55	101 905.2
3 20	30.714	20	614.29	1842.85	.85	20	36 856.9	1 00	111 169.3
21	4	1	645.00	.85	.85	1	38 699.8	05	120 433.3
22	4	2	675.71	.85	.85	2	40 542.6	10	129 697.4
23	4	3	706.43	.85	.85	3	42 385.5	15	138 961.5
24	4	4	737.14	.85	.85	4	44 228.3	20	148 225.7
3 25	30.714	25	767.86	1842.85	.85	25	46 071.2	1 25	157 489.8
26	4	6	798.57	.85	.85	6	47 914.0	30	166 753.9
27	4	7	829.29	.85	.85	7	49 756.9	35	176 018.0
28	4	8	860.00	.86	.86	8	51 599.7	40	185 282.0
29	4	9	890.71	.86	.86	9	53 442.6	45	194 546.1
3 30	30.714	30	921.43	1842.86	.86	30	55 285.5	1 50	203 810.1
31	4	1	952.14	.86	.86	1	57 128.3	55	213 074.1
32	4	2	982.86	.86	.86	2	58 971.2	2 00	222 338
33	4	3	1 013.57	.86	.86	3	60 814.0	3 00	333 507
34	4	4	1 044.29	.86	.86	4	62 656.9	4 00	444 676
3 35	30.714	35	1 075.00	1842.86	.86	35	64 499.8	5 00	555 844
36	4	6	1 105.71	.86	.86	6	66 342.6	6 00	667 012
37	4	7	1 136.43	.86	.86	7	68 185.5	7 00	778 179
38	4	8	1 167.14	.86	.86	8	70 028.3	8 00	889 346
39	4	9	1 197.86	.86	.86	9	71 871.2	9 00	1 000 512
3 40	30.714	40	1 228.57	1842.86	.86	40	73 714.1	10 00	1 111 677
41	4	1	1 259.29	.86	.86	1	75 556.9	11 00	1 222 841
42	4	2	1 290.00	.86	.86	2	77 399.8	12 00	1 334 005
43	4	3	1 320.71	.87	.87	3	79 242.7	13 00	1 445 166
44	4	4	1 351.43	.87	.87	4	81 085.5	14 00	1 556 327
3 45	30.714	45	1 382.14	1842.87	.87	45	82 928.4	15 00	1 667 487
46	4	6	1 412.86	.87	.87	6	84 771.3	16 00	1 778 645
47	4	7	1 443.57	.87	.87	7	86 614.1	17 00	1 889 802
48	4	8	1 474.29	.87	.87	8	88 457.0	18 00	2 000 957
49	4	9	1 505.00	.87	.87	9	90 299.9	19 00	2 112 110
3 50	30.715	50	1 535.71	1842.87	.87	50	92 142.7	20 00	2 223 260
51	5	1	1 566.43	.87	.87	1	93 985.6	21 00	2 334 410
52	5	2	1 597.14	.87	.87	2	95 828.4	22 00	2 445 557
53	5	3	1 627.86	.87	.87	3	97 671.3	23 00	2 556 703
54	5	4	1 658.57	.87	.87	4	99 514.2	24 00	2 667 846
3 55	30.715	55	1 689.29	1842.87	.87	55	101 357.0	25 00	2 778 988
56	5	6	1 720.00	.87	.87	6	103 199.9	26 00	2 890 127
57	5	7	1 750.71	.88	.88	7	105 042.8	27 00	3 001 265
58	5	8	1 781.43	.88	.88	8	106 885.7	28 00	3 112 399
59	5	9	1 812.14	.88	.88	9	108 728.5	29 00	3 223 530
3 60	30.715	60	1 842.86	1842.88		60	110 571.4	30 00	3 334 659

Latitude 4° to 5°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
0														
4 00	30.848	61.70	92.54	123.39	154.24	185.09	215.93	246.78	277.63	1850.9	3701.7	5552.6	7403.4	9254.3
1	.847	.70	.54	.39	.24	.09	.93	.78	.62	0.9	1.6	2.5	3.3	4.1
2	.846	.70	.54	.39	.23	.08	.92	.77	.62	0.8	1.6	2.4	3.1	3.9
3	.846	.69	.54	.38	.23	.08	.92	.77	.61	0.8	1.5	2.2	3.0	3.8
4	.845	.69	.54	.38	.23	.07	.91	.76	.61	0.7	1.4	2.1	2.8	3.6
4 05	30.845	61.69	92.53	123.38	154.22	185.07	215.91	246.76	277.60	1850.7	3701.4	5552.0	7402.7	9253.4
6	.844	.69	.53	.38	.22	.07	.91	.75	.59	0.7	1.3	1.9	2.5	3.2
7	.843	.69	.53	.38	.22	.06	.90	.75	.59	0.6	1.2	1.8	2.4	3.0
8	.843	.68	.53	.37	.22	.06	.90	.74	.58	0.6	1.1	1.6	2.2	2.8
9	.842	.68	.53	.37	.21	.05	.89	.74	.58	0.5	1.1	1.5	2.1	2.6
4 10	30.841	61.68	92.52	123.37	154.21	185.05	215.89	246.73	277.57	1850.5	3701.0	5551.4	7401.9	9252.4
11	.841	.68	.52	.37	.21	.05	.89	.73	.56	0.5	0.9	1.3	1.8	2.2
12	.840	.68	.52	.36	.20	.04	.88	.72	.56	0.4	0.8	1.2	1.6	2.0
13	.839	.68	.52	.36	.20	.04	.88	.72	.55	0.4	0.8	1.0	1.5	1.8
14	.839	.68	.52	.36	.19	.03	.87	.71	.55	0.3	0.7	0.9	1.3	1.6
4 15	30.838	61.68	92.51	123.35	154.19	185.03	215.87	246.71	277.54	1850.3	3700.6	5550.9	7401.2	9251.4
16	.837	.67	.51	.35	.19	.03	.86	.70	.53	0.3	0.5	0.7	1.0	1.2
17	.837	.67	.51	.35	.18	.02	.86	.70	.53	0.2	0.4	0.6	0.8	1.0
18	.836	.67	.51	.35	.18	.02	.85	.69	.52	0.2	0.4	0.4	0.7	0.8
19	.835	.67	.51	.34	.17	.01	.85	.69	.52	0.1	0.3	0.3	0.5	0.6
4 20	30.835	61.67	92.50	123.34	154.17	185.01	215.84	246.68	277.51	1850.1	3700.2	5550.2	7400.3	9250.4
21	.834	.67	.50	.34	.17	.01	.84	.67	.50	0.1	0.1	0.1	0.1	0.2
22	.833	.67	.50	.33	.16	.00	.83	.67	.50	0.0	700.0	50.0	400.0	50.0
23	.833	.67	.50	.33	.16	5.00	.83	.66	.49	50.0	699.9	49.8	399.8	49.8
24	.832	.67	.50	.33	.16	4.99	.82	.66	.49	49.9	9.8	9.7	9.7	9.6
4 25	30.831	61.67	92.49	123.32	154.15	184.99	215.82	246.65	277.48	1849.9	3699.8	5549.6	7399.5	9249.4
26	.831	.66	.49	.32	.15	.99	.81	.64	.47	9.9	9.7	9.5	9.3	9.2
27	.830	.66	.49	.32	.15	.98	.81	.64	.47	9.8	9.6	9.4	9.2	9.0
28	.829	.66	.49	.32	.15	.98	.80	.63	.46	9.8	9.5	9.2	9.0	8.7
29	.828	.66	.49	.31	.14	.97	.80	.63	.46	9.7	9.4	9.1	8.9	8.5
4 30	30.828	61.66	92.48	123.31	154.14	184.97	215.79	246.62	277.45	1849.7	3699.3	5549.0	7398.7	9248.3
31	.827	.66	.48	.31	.14	.97	.79	.61	.44	9.7	9.2	8.9	8.5	8.1
32	.826	.66	.48	.30	.13	.96	.78	.61	.44	9.6	9.1	8.8	8.3	7.9
33	.826	.65	.48	.30	.13	.96	.78	.60	.43	9.6	9.1	8.6	8.2	7.7
34	.825	.65	.48	.30	.12	.95	.77	.60	.42	9.5	9.0	8.5	8.0	7.5
4 35	30.824	61.65	92.47	123.29	154.12	184.95	215.77	246.59	277.41	1849.5	3698.9	5548.4	7397.8	9247.3
36	.824	.65	.47	.29	.12	.94	.76	.58	.41	9.4	8.8	8.3	7.6	7.1
37	.823	.65	.47	.29	.11	.94	.76	.58	.40	9.4	8.7	8.1	7.4	6.9
38	.822	.64	.47	.29	.11	.93	.75	.57	.39	9.3	8.7	8.0	7.3	6.6
39	.821	.64	.46	.28	.10	.93	.75	.57	.38	9.3	8.6	7.8	7.1	6.4
4 40	30.821	61.64	92.46	123.28	154.10	184.92	215.74	246.56	277.38	1849.2	3698.5	5547.7	7396.9	9246.2
41	.820	.64	.46	.28	.10	.92	.74	.56	.37	9.2	8.4	7.6	6.7	6.0
42	.819	.64	.46	.27	.09	.91	.73	.55	.37	9.1	8.3	7.5	6.6	5.8
43	.818	.64	.46	.27	.09	.91	.73	.55	.36	9.1	8.2	7.3	6.4	5.5
44	.818	.64	.45	.27	.09	.90	.72	.54	.36	9.0	8.1	7.2	6.3	5.3
4 45	30.817	61.64	92.45	123.26	154.08	184.90	215.72	246.54	277.35	1849.0	3698.0	5547.1	7396.1	9245.1
46	.816	.63	.45	.26	.08	.90	.71	.53	.34	9.0	8.0	7.0	5.9	4.9
47	.816	.63	.45	.26	.08	.89	.71	.53	.34	8.9	7.9	6.8	5.7	4.7
48	.815	.63	.44	.26	.08	.89	.70	.52	.33	8.9	7.8	6.7	5.6	4.4
49	.814	.63	.44	.25	.07	.88	.70	.52	.33	8.8	7.7	6.5	5.4	4.2
4 50	30.813	61.63	92.44	123.25	154.07	184.88	215.69	246.51	277.32	1848.8	3697.6	5546.4	7395.2	9244.0
51	.813	.63	.44	.25	.07	.88	.69	.50	.31	8.8	7.5	6.3	5.0	3.8
52	.812	.63	.44	.24	.06	.87	.68	.50	.31	8.7	7.4	6.1	4.8	3.5
53	.811	.62	.43	.24	.06	.87	.68	.49	.30	8.7	7.3	6.0	4.7	3.3
54	.810	.62	.43	.24	.05	.86	.67	.48	.29	8.6	7.2	5.8	4.5	3.0
4 55	30.809	61.62	92.43	123.23	154.05	184.86	215.67	246.47	277.28	1848.6	3697.1	5545.7	7394.3	9242.8
56	.809	.62	.43	.23	.05	.85	.66	.47	.28	8.5	7.1	5.6	4.1	2.6
57	.808	.62	.42	.23	.04	.85	.66	.46	.27	8.5	7.0	5.4	3.9	2.4
58	.807	.61	.42	.23	.04	.84	.65	.45	.26	8.4	6.9	5.3	3.7	2.1
59	.806	.61	.42	.22	.03	.84	.65	.45	.26	8.4	6.8	5.1	3.5	1.9
4 60	30.806	61.61	92.42	123.22	154.03	184.83	215.64	246.44	277.25	1848.3	3696.7	5545.0	7393.3	9241.7

		Latitude 4° to 5°—Meridional arcs.					Latitude 4°—Co-ordinates of curvature.		
Lat.		Value of 1"	Sums of seconds for middle latitude 4° 30'		Value of 1'	Continuous sums of minutes from latitude 4° 00'	Longitude.	X	Y
° ' "	Meters.	"	Meters.		Meters.	' "	Meters.		Meters.
4 00	30.715				1842.88				
1	5	1	30.72	.88	1	1842.9	0 1	1850.9	
2	5	2	61.43	.88	2	3685.8	2	3701.7	0.1
3	5	3	92.15	.88	3	5528.6	3	5552.6	0.2
4	5	4	122.86	.88	4	7371.5	4	7403.4	0.3
4 05	30.715	5	153.58	1842.88	5	9214.4	0 5	9254.3	0.5
6	5	6	184.29	.88	6	11057.3	6	11105.1	0.7
7	5	7	215.01	.88	7	12900.2	7	12956.0	0.9
8	5	8	245.72	.89	8	14743.1	8	14806.9	1.2
9	5	9	276.44	.89	9	16585.9	9	16657.7	1.5
4 10	30.715	10	307.15	1842.89	10	18428.8	0 10	18508.6	1.9
11	5	11	337.87	.89	11	20271.7	15	27762.8	4.2
12	5	12	368.58	.89	12	22114.6	20	37017.1	7.5
13	5	13	399.30	.89	13	23957.5	25	46271.4	11.7
14	5	14	430.01	.89	14	25800.4	30	55525.7	16.9
4 15	30.715	15	460.73	1842.89	15	27643.3	0 35	64780.0	23.0
16	5	16	491.44	.89	16	29486.2	40	74034.3	30.0
17	5	17	522.16	.89	17	31329.0	45	83288.5	38.0
18	5	18	552.87	.89	18	33171.9	50	92542.8	46.9
19	5	19	583.59	.89	19	35014.8	55	101797.1	56.8
4 20	30.715	20	614.30	1842.89	20	36857.7	1 00	111051.4	67.6
21	5	21	645.02	.90	1	38700.6	05	120305.7	79.3
22	5	22	675.73	.90	2	40543.5	10	129559.9	92.0
23	5	23	706.45	.90	3	42386.4	15	138814.2	105.6
24	5	24	737.16	.90	4	44229.3	20	148068.5	120.2
4 25	30.715	25	767.88	1842.90	25	46072.2	1 25	157322.7	135.7
26	5	26	798.59	.90	26	47915.1	30	166577.0	152.1
27	5	27	829.31	.90	27	49758.0	35	175831.3	169.5
28	5	28	860.02	.90	28	51600.9	40	185085.5	187.8
29	5	29	890.74	.90	29	53443.8	45	194339.8	207.0
4 30	30.715	30	921.45	1842.90	30	55286.7	1 50	203594.0	227.2
31	5	31	952.17	.90	1	57129.6	55	212848.3	248.3
32	5	32	982.88	.90	2	58972.5	2 00	222102	270
33	5	33	1013.60	.90	3	60815.4	3 00	333153	608
34	5	34	1044.31	.90	4	62658.3	4 00	444203	1082
4 35	30.715	35	1075.03	1842.91	35	64501.2	5 00	555253	1691
36	5	36	1105.74	.91	36	66344.1	6 00	666302	2434
37	5	37	1136.46	.91	37	68187.0	7 00	777350	3312
38	5	38	1167.17	.91	38	70029.9	8 00	888397	4326
39	5	39	1197.89	.91	39	71872.9	9 00	999442	5476
4 40	30.715	40	1228.60	1842.91	40	73715.8	10 00	1110487	6760
41	5	41	1259.32	.91	1	75558.7	11 00	1221529	8180
42	5	42	1290.03	.91	2	77401.6	12 00	1332570	9735
43	5	43	1320.75	.91	3	79244.5	13 00	1443608	11425
44	5	44	1351.46	.91	4	81087.4	14 00	1554644	13250
4 45	30.715	45	1382.18	1842.91	45	82930.3	15 00	1665678	15210
46	5	46	1412.89	.92	46	84773.2	16 00	1776710	17305
47	5	47	1443.61	.92	47	86616.2	17 00	1887739	19536
48	5	48	1474.32	.92	48	88459.1	18 00	1998765	21902
49	5	49	1505.04	.92	49	90302.0	19 00	2109789	24403
4 50	30.715	50	1535.75	1842.92	50	92144.9	20 00	2220809	27039
51	5	51	1566.47	.92	1	93987.8	21 00	2331825	29810
52	5	52	1597.18	.92	2	95830.8	22 00	2442839	32717
53	5	53	1627.90	.92	3	97673.7	23 00	2553848	35758
54	5	54	1658.61	.92	4	99516.6	24 00	2664854	38935
4 55	30.715	55	1689.33	1842.92	55	101359.5	25 00	2775856	42248
56	5	56	1720.04	.93	56	103202.4	26 00	2886854	45696
57	5	57	1750.76	.93	57	105045.4	27 00	2997848	49278
58	5	58	1781.47	.93	58	106888.3	28 00	3108837	52995
59	5	59	1812.19	.93	59	108731.2	29 00	3219821	56848
4 60	30.715	60	1842.90	.93	60	110574.1	30 00	3330801	60835

Latitude 5° to 6°—Arcs of the parallel in meters.														
Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
5 00	30.806	61.61	92.42	123.22	154.03	184.83	215.64	246.44	277.25	1848.3	3696.7	5545.0	7393.3	9241.7
1	.805	.61	.42	.22	.03	.83	.63	.43	.24	8.3	6.6	4.9	3.1	1.5
2	.804	.61	.41	.21	.02	.82	.63	.43	.24	8.2	6.5	4.7	2.9	1.2
3	.803	.61	.41	.21	.02	.82	.62	.42	.23	8.2	6.4	4.6	2.8	1.0
4	.802	.61	.41	.21	.01	.81	.62	.42	.22	8.1	6.3	4.4	2.6	0.7
5 05	30.802	61.61	92.40	123.20	154.01	184.81	215.61	246.41	277.21	1848.1	3696.2	5544.3	7392.4	9240.5
6	.801	.60	.40	.20	.01	.81	.60	.40	.21	8.1	6.1	4.2	2.2	0.3
7	.800	.60	.40	.20	.00	.80	.60	.40	.20	8.0	6.0	4.0	2.0	40.0
8	.799	.60	.40	.20	4.00	.80	.59	.39	.19	8.0	5.9	3.9	1.8	39.8
9	.798	.60	.39	.19	3.99	.79	.59	.39	.19	7.9	5.8	3.7	1.6	9.5
5 10	30.798	61.60	92.39	123.19	153.99	184.79	215.58	246.38	277.18	1847.9	3695.7	5543.6	7391.4	9239.3
11	.797	.60	.39	.19	.99	.78	.58	.37	.17	7.8	5.6	3.4	1.2	9.0
12	.796	.60	.39	.18	.98	.78	.57	.37	.16	7.8	5.5	3.3	1.0	8.8
13	.795	.59	.38	.18	.98	.77	.57	.36	.16	7.7	5.4	3.1	0.9	8.5
14	.794	.59	.38	.18	.97	.77	.56	.36	.15	7.7	5.3	3.0	0.7	8.3
5 15	30.793	61.59	92.38	123.17	153.97	184.76	215.56	246.35	277.14	1847.6	3695.2	5542.8	7390.5	9238.0
16	.793	.59	.38	.17	.97	.76	.55	.34	.13	7.6	5.1	2.7	0.3	7.8
17	.792	.59	.38	.17	.96	.75	.55	.34	.12	7.5	5.0	2.5	90.1	7.5
18	.791	.58	.37	.17	.96	.75	.54	.33	.12	7.5	4.9	2.4	89.9	7.3
19	.790	.58	.37	.16	.95	.74	.54	.33	.11	7.4	4.8	2.2	9.7	7.0
5 20	30.789	61.58	92.37	123.16	153.95	184.74	215.53	246.32	277.10	1847.4	3694.7	5542.1	7389.5	9236.8
21	.788	.58	.37	.16	.95	.73	.52	.31	.09	7.3	4.6	1.9	9.3	6.5
22	.788	.58	.36	.15	.94	.73	.52	.31	.09	7.3	4.5	1.8	9.1	6.3
23	.787	.57	.36	.15	.94	.72	.51	.30	.08	7.2	4.4	1.6	8.8	6.0
24	.786	.57	.36	.14	.93	.72	.51	.29	.07	7.2	4.3	1.5	8.6	5.8
5 25	30.785	61.57	92.35	123.14	153.93	184.71	215.50	246.28	277.06	1847.1	3694.2	5541.3	7388.4	9235.5
26	.784	.57	.35	.14	.92	.71	.49	.28	.06	7.1	4.1	1.2	8.2	5.3
27	.783	.57	.35	.13	.92	.70	.49	.27	.05	7.0	4.0	1.0	8.0	5.0
28	.783	.56	.35	.13	.91	.70	.48	.26	.04	7.0	3.9	0.9	7.8	4.8
29	.782	.56	.34	.12	.91	.69	.48	.26	.04	6.9	3.8	0.7	7.6	4.5
5 30	30.781	61.56	92.34	123.12	153.90	184.69	215.47	246.25	277.03	1846.9	3693.7	5540.6	7387.4	9234.3
31	.780	.56	.34	.12	.90	.68	.46	.24	.02	6.8	3.6	0.4	7.2	4.0
32	.779	.56	.34	.11	.89	.67	.46	.24	.01	6.7	3.5	0.3	7.0	3.8
33	.778	.55	.33	.11	.89	.67	.45	.23	.01	6.7	3.4	0.1	6.8	3.5
34	.778	.55	.33	.11	.88	.67	.45	.22	7.00	6.7	3.3	40.0	6.6	3.3
5 35	30.777	61.55	92.33	123.10	153.88	184.66	215.44	246.21	276.99	1846.6	3693.2	5539.8	7386.4	9233.0
36	.776	.55	.33	.10	.88	.65	.43	.21	.98	6.5	3.1	9.6	6.2	2.7
37	.775	.55	.33	.10	.87	.65	.43	.20	.97	6.5	3.0	9.5	6.0	2.5
38	.774	.54	.32	.10	.87	.64	.42	.19	.97	6.4	2.9	9.3	5.8	2.2
39	.773	.54	.32	.09	.86	.64	.42	.19	.96	6.4	2.8	9.2	5.6	2.0
5 40	30.772	61.54	92.32	123.09	153.86	184.63	215.41	246.18	276.95	1846.3	3692.7	5539.0	7385.4	9231.7
41	.771	.54	.31	.09	.86	.63	.40	.17	.94	6.3	2.6	8.8	5.2	1.4
42	.770	.54	.31	.08	.85	.62	.40	.17	.93	6.2	2.5	8.7	5.0	1.1
43	.770	.54	.31	.08	.85	.62	.39	.16	.93	6.2	2.3	8.5	4.7	0.9
44	.769	.54	.31	.07	.84	.61	.38	.15	.92	6.1	2.2	8.4	4.5	0.6
5 45	30.768	61.54	92.30	123.07	153.84	184.61	215.37	246.14	276.91	1846.1	3692.1	5538.2	7384.3	9230.3
46	.767	.53	.30	.07	.84	.60	.37	.14	.90	6.0	2.0	8.0	4.1	30.0
47	.766	.53	.30	.06	.83	.60	.36	.13	.89	6.0	1.9	7.9	3.9	29.8
48	.765	.53	.30	.06	.83	.59	.35	.12	.89	5.9	1.8	7.7	3.7	9.5
49	.764	.53	.29	.05	.82	.59	.35	.12	.88	5.9	1.7	7.6	3.5	9.3
5 50	30.763	61.53	92.29	123.05	153.82	184.58	215.34	246.11	276.87	1845.8	3691.6	5537.4	7383.2	9229.0
51	.762	.53	.29	.05	.82	.57	.33	.10	.86	5.7	1.5	7.2	3.0	8.7
52	.761	.53	.28	.04	.81	.57	.33	.09	.85	5.7	1.4	7.0	2.8	8.4
53	.761	.52	.28	.04	.81	.56	.32	.09	.85	5.6	1.2	6.9	2.5	8.2
54	.760	.52	.28	.04	.80	.56	.32	.08	.84	5.6	1.1	6.7	2.3	7.9
5 55	30.759	61.52	92.27	123.03	153.80	184.55	215.31	246.07	276.83	1845.5	3691.0	5536.5	7382.1	9227.6
56	.758	.52	.27	.03	.79	.54	.30	.06	.82	5.4	0.9	6.3	1.9	7.3
57	.757	.52	.27	.03	.79	.54	.30	.05	.81	5.4	0.8	6.2	1.7	7.0
58	.756	.51	.27	.03	.78	.53	.29	.05	.81	5.3	0.7	6.0	1.4	6.8
59	.755	.51	.26	.02	.78	.53	.29	.04	.80	5.3	0.6	5.9	1.2	6.5
5 60	30.754	61.51	92.26	123.02	153.77	184.52	215.28	246.03	276.79	1845.2	3690.5	5535.7	7381.0	9226.2

Lat.	Latitude 5° to 6°—Meridional arcs.						Latitude 5°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 5° 30'		Value of 1'	Continuous sums of minutes from latitude 5° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
5 00	30.715			1842.93					
1	5	1	30.72	.93	1	1 842.9	0 1	1 848.3	
2	6	2	61.43	.93	2	3 685.9	2	3 696.7	0.1
3	6	3	92.15	.93	3	5 528.8	3	5 545.0	0.2
4	6	4	122.86	.93	4	7 371.7	4	7 393.3	0.4
5 05	30.716	5	153.58	1842.93	5	9 214.7	0 5	9 241.7	0.6
6	6	6	184.30	.93	6	11 057.6	6	11 090.0	0.8
7	6	7	215.01	.94	7	12 900.5	7	12 938.3	1.1
8	6	8	245.73	.94	8	14 743.5	8	14 786.7	1.5
9	6	9	276.44	.94	9	16 586.4	9	16 635.0	1.9
5 10	30.716	10	307.16	1842.94	10	18 429.3	0 10	18 483.3	2.3
11	6	1	337.88	.94	1	20 272.3	15	27 725.0	5.3
12	6	2	368.59	.94	2	22 115.2	20	36 966.6	9.4
13	6	3	399.31	.94	3	23 958.2	25	46 208.3	14.6
14	6	4	430.02	.94	4	25 801.1	30	55 449.9	21.1
5 15	30.716	15	460.74	1842.94	15	27 644.1	0 35	64 691.6	28.7
16	6	6	491.46	.94	6	29 487.0	40	73 933.3	37.5
17	6	7	522.17	.95	7	31 329.9	45	83 174.9	47.4
18	6	8	552.89	.95	8	33 172.9	50	92 416.6	58.6
19	6	9	583.60	.95	9	35 015.8	55	101 658.2	70.9
5 20	30.716	20	614.32	1842.85	20	36 858.8	1 00	110 899.9	84.4
21	6	1	645.04	.95	1	38 701.7	05	120 141.5	99.0
22	6	2	675.75	.95	2	40 544.7	10	129 383.2	114.8
23	6	3	706.47	.95	3	42 387.6	15	138 624.8	131.8
24	6	4	737.18	.95	4	44 230.6	20	147 866.4	150.0
5 25	30.716	25	767.90	1842.95	25	46 073.5	1 25	157 108.0	169.3
26	6	6	798.62	.95	6	47 916.5	30	166 349.7	189.8
27	6	7	829.33	.96	7	49 759.5	35	175 591.3	211.5
28	6	8	860.05	.96	8	51 602.4	40	184 832.9	234.3
29	6	9	890.76	.96	9	53 445.4	45	194 074.5	258.3
5 30	30.716	30	921.48	1842.96	30	55 288.3	1 50	203 316.2	283.5
31	6	1	952.20	.96	1	57 131.3	55	212 557.8	309.9
32	6	2	982.91	.96	2	58 974.3	2 00	221 799	337
33	6	3	1 013.63	.96	3	60 817.2	3 00	332 699	759
34	6	4	1 044.34	.96	4	62 660.2	4 00	443 597	1 349
5 35	30.716	35	1 075.06	1842.96	35	64 503.1	5 00	554 494	2 108
36	6	6	1 105.78	.97	6	66 346.1	6 00	665 390	3 036
37	6	7	1 136.49	.97	7	68 189.1	7 00	776 284	4 133
38	6	8	1 167.21	.97	8	70 032.0	8 00	887 177	5 398
39	6	9	1 197.92	.97	9	71 875.0	9 00	998 068	6 832
5 40	30.716	40	1 228.64	1842.97	40	73 718.0	10 00	1 108 956	8 435
41	6	1	1 259.36	.97	1	75 560.9	11 00	1 219 842	10 206
42	6	2	1 290.07	.97	2	77 403.9	12 00	1 330 725	12 146
43	6	3	1 320.79	.97	3	79 246.9	13 00	1 441 604	14 255
44	6	4	1 351.50	.97	4	81 089.9	14 00	1 552 481	16 532
5 45	30.716	45	1 382.22	1842.97	45	82 932.9	15 00	1 663 354	18 977
46	6	6	1 412.94	.98	6	84 775.8	16 00	1 774 223	21 592
47	6	7	1 443.65	.98	7	86 618.8	17 00	1 885 088	24 376
48	6	8	1 474.37	.98	8	88 461.8	18 00	1 995 948	27 328
49	6	9	1 505.08	.98	9	90 304.8	19 00	2 106 804	30 448
5 50	30.716	50	1 535.80	1842.98	50	92 147.7	20 00	2 217 655	33 737
51	6	1	1 566.52	.98	1	93 990.7	21 00	2 328 502	37 195
52	6	2	1 597.23	.98	2	95 833.7	22 00	2 439 342	40 821
53	6	3	1 627.95	.98	3	97 676.7	23 00	2 550 177	44 616
54	6	4	1 658.66	.98	4	99 519.7	24 00	2 661 006	48 579
5 55	30.716	55	1 689.38	1842.98	55	101 362.7	25 00	2 771 829	52 711
56	6	6	1 720.10	.99	6	103 205.6	26 00	2 882 645	57 013
57	6	7	1 750.81	.99	7	105 048.6	27 00	2 993 455	61 483
58	6	8	1 781.53	.99	8	106 891.6	28 00	3 104 259	66 120
59	6	9	1 812.24	.99	9	108 734.6	29 00	3 215 055	70 926
5 60	30.716	60	1 842.96	1842.99	60	110 577.6	30 00	3 325 844	75 900

Latitude 6° to 7°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
6 00	30.754	61.51	92.26	123.02	153.77	184.52	215.28	246.03	276.79	1845.2	3690.5	5535.7	7381.0	9226.2
1	.753	.51	.26	.02	.77	.52	.27	.02	.78	5.2	0.4	5.5	0.8	5.9
2	.752	.51	.26	.01	.76	.51	.27	.02	.77	5.1	0.3	5.4	0.6	5.6
3	.751	.50	.25	.01	.76	.51	.26	.01	.76	5.1	0.1	5.2	0.3	5.4
4	.750	.50	.25	.00	.75	.50	.25	6.00	.75	5.0	90.0	5.1	80.1	5.1
6 05	30.749	61.50	92.25	123.00	153.75	184.50	215.24	245.99	276.74	1845.0	3689.9	5534.9	7379.9	9224.8
6	.748	.50	.24	.00	.74	.49	.24	.99	.74	4.9	9.8	4.7	9.7	4.5
7	.747	.50	.24	3.00	.74	.49	.23	.98	.73	4.9	9.7	4.5	9.4	4.2
8	.747	.49	.24	2.99	.73	.48	.22	.97	.72	4.8	9.6	4.4	9.2	4.0
9	.746	.49	.24	.99	.73	.48	.22	.97	.71	4.8	9.5	4.2	8.9	3.7
6 10	30.745	61.49	92.23	122.98	153.72	184.47	215.21	245.96	276.70	1844.7	3689.4	5534.0	7378.7	9223.4
11	.744	.49	.23	.98	.72	.46	.20	.95	.69	4.6	9.3	3.8	8.5	3.1
12	.743	.49	.23	.97	.71	.46	.20	.94	.68	4.6	9.2	3.7	8.3	2.8
13	.742	.48	.22	.97	.71	.45	.19	.94	.67	4.5	9.0	3.5	8.0	2.5
14	.741	.48	.22	.96	.70	.45	.18	.93	.66	4.5	8.9	3.4	7.8	2.2
6 15	30.740	61.48	92.22	122.96	153.70	184.44	215.17	245.92	276.65	1844.4	3688.8	5533.2	7377.6	9221.9
16	.739	.48	.22	.96	.69	.43	.17	.91	.65	4.3	8.7	3.0	7.4	1.6
17	.738	.48	.21	.95	.69	.43	.16	.90	.64	4.3	8.6	2.8	7.1	1.3
18	.737	.47	.21	.95	.68	.42	.15	.90	.63	4.2	8.4	2.7	6.9	1.1
19	.736	.47	.21	.94	.68	.42	.15	.89	.62	4.2	8.3	2.5	6.6	0.8
6 20	30.735	61.47	92.20	122.94	153.67	184.41	215.14	245.88	276.61	1844.1	3688.2	5532.3	7376.4	9220.5
21	.734	.47	.20	.94	.67	.40	.13	.87	.60	4.0	8.1	2.1	6.2	20.2
22	.733	.47	.20	.93	.66	.40	.13	.86	.59	4.0	8.0	1.9	5.9	19.9
23	.732	.46	.20	.93	.66	.39	.12	.86	.58	3.9	7.8	1.8	5.7	9.6
24	.731	.46	.19	.92	.65	.39	.11	.85	.57	3.9	7.7	1.6	5.4	9.3
6 25	30.730	61.46	92.19	122.92	153.65	184.38	215.10	245.84	276.56	1843.8	3687.6	5531.4	7375.2	9219.0
26	.729	.46	.19	.92	.64	.37	.10	.83	.56	3.7	7.5	1.2	5.0	8.7
27	.728	.46	.18	.91	.64	.37	.09	.82	.55	3.7	7.4	1.0	4.7	8.4
28	.727	.45	.18	.91	.63	.36	.08	.82	.54	3.6	7.2	0.9	4.5	8.1
29	.726	.45	.18	.90	.63	.36	.08	.81	.53	3.6	7.1	0.7	4.2	7.8
6 30	30.725	61.45	92.17	122.90	153.62	184.35	215.07	245.80	276.52	1843.5	3687.0	5530.5	7374.0	9217.5
31	.724	.45	.17	.90	.62	.34	.06	.79	.51	3.4	6.9	0.3	3.8	7.2
32	.723	.45	.17	.89	.61	.34	.06	.78	.50	3.4	6.8	0.1	3.5	6.9
33	.722	.44	.16	.89	.61	.33	.05	.78	.49	3.3	6.6	30.0	3.3	6.5
34	.721	.44	.16	.88	.60	.33	.04	.77	.48	3.3	6.5	29.8	3.0	6.2
6 35	30.720	61.44	92.16	122.88	153.60	184.32	215.03	245.76	276.47	1843.2	3686.4	5529.6	7372.8	9215.9
36	.719	.44	.16	.88	.59	.31	.03	.75	.47	3.1	6.3	9.4	2.6	5.6
37	.718	.44	.15	.87	.59	.31	.02	.74	.46	3.1	6.2	9.2	2.3	5.3
38	.717	.43	.15	.87	.58	.30	.01	.74	.45	3.0	6.0	9.1	2.1	5.0
39	.716	.43	.15	.86	.58	.30	.01	.73	.44	3.0	5.9	8.9	1.8	4.7
6 40	30.715	61.43	92.14	122.86	153.57	184.29	215.00	245.72	276.43	1842.9	3685.8	5528.7	7371.6	9214.4
41	.714	.43	.14	.86	.57	.28	4.99	.71	.42	2.8	5.7	8.5	1.3	4.1
42	.713	.43	.14	.85	.56	.28	.99	.70	.41	2.8	5.5	8.3	1.1	3.8
43	.711	.42	.13	.85	.56	.27	.98	.69	.40	2.7	5.4	8.1	0.8	3.4
44	.710	.42	.13	.84	.55	.27	.97	.68	.39	2.7	5.2	7.9	0.6	3.1
6 45	30.709	61.42	92.13	122.84	153.55	184.26	214.96	245.67	276.38	1842.6	3685.1	5527.7	7370.3	9212.8
46	.708	.42	.12	.84	.54	.25	.96	.67	.38	2.5	5.0	7.5	70.0	2.5
47	.707	.42	.12	.83	.54	.25	.95	.66	.37	2.5	4.9	7.3	69.8	2.2
48	.706	.41	.12	.83	.53	.24	.94	.65	.36	2.4	4.7	7.2	9.5	1.9
49	.705	.41	.12	.82	.53	.24	.94	.64	.35	2.4	4.6	7.0	9.3	1.6
6 50	30.704	61.41	92.11	122.82	153.52	184.23	214.93	245.63	276.34	1842.3	3684.5	5526.8	7369.0	9211.3
51	.703	.41	.11	.82	.52	.22	.92	.62	.33	2.2	4.4	6.6	8.7	1.0
52	.702	.41	.11	.81	.51	.21	.91	.61	.32	2.1	4.3	6.4	8.5	0.6
53	.701	.40	.10	.81	.51	.21	.91	.61	.31	2.1	4.1	6.2	8.2	10.3
54	.700	.40	.10	.80	.50	.20	.90	.60	.30	2.0	4.0	6.0	8.0	09.9
6 55	30.699	61.40	92.10	122.80	153.50	184.19	214.89	245.59	276.29	1841.9	3683.9	5525.8	7367.7	9209.6
56	.698	.40	.09	.79	.49	.19	.88	.58	.28	1.9	3.8	5.6	7.4	9.3
57	.697	.40	.09	.79	.49	.18	.87	.57	.27	1.8	3.6	5.4	7.2	9.0
58	.695	.39	.09	.78	.48	.17	.87	.57	.26	1.7	3.5	5.2	6.9	8.6
59	.694	.39	.08	.78	.48	.17	.86	.56	.25	1.7	3.3	5.0	6.7	8.3
6 60	30.693	61.39	92.08	122.77	153.47	184.16	214.85	245.55	276.24	1841.6	3683.2	5524.8	7366.4	9208.0

		Latitude 6° to 7°—Meridional arcs.					Latitude 6°—Co-ordinates of curvature.		
Lat.		Value of 1''	Sums of seconds for middle latitude 6° 30'	Value of 1'	Continuous sums of minutes from latitude 6° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
6 00	30.716			1842.99					
1	7	1	30.72	.99	1	1 843.0	0 1	1 845.3	
2	7	2	61.43	.99	2	3 686.0	2	3 690.5	0.1
3	7	3	92.15	.99	3	5 529.0	3	5 535.8	0.2
4	7	4	122.87	.99	4	7 372.0	4	7 381.0	0.4
6 05	30.717	5	153.59	1843.00	5	9 215.0	0 5	9 226.3	0.7
6	7	6	184.30	.00	6	11 058.0	6	11 071.5	1.0
7	7	7	215.02	.00	7	12 901.0	7	12 916.7	1.4
8	7	8	245.74	.00	8	14 744.0	8	14 762.0	1.8
9	7	9	276.45	.00	9	16 587.0	9	16 607.2	2.3
6 10	30.717	10	307.17	1843.00	10	18 430.0	0 10	18 452.5	2.8
11	7	1	337.89	.00	1	20 273.0	15	27 678.8	6.3
12	7	2	368.61	.00	2	22 116.0	20	36 905.0	11.2
13	7	3	399.32	.00	3	23 959.0	25	46 131.2	17.5
14	7	4	430.04	.01	4	25 802.0	30	55 357.5	25.3
6 15	30.717	15	460.76	1843.01	15	27 645.0	0 35	64 583.8	34.4
16	7	6	491.47	.01	6	29 488.0	40	73 810.0	44.9
17	7	7	522.19	.01	7	31 331.0	45	83 036.2	56.8
18	7	8	552.91	.01	8	33 174.0	50	92 262.5	70.1
19	7	9	583.63	.01	9	35 017.0	55	101 488.7	84.9
6 20	30.717	20	614.34	1843.01	20	36 860.0	1 00	110 714.9	101.0
21	7	1	645.06	.01	1	38 703.1	05	119 941.2	118.5
22	7	2	675.78	.02	2	40 546.1	10	129 167.4	137.5
23	7	3	706.49	.02	3	42 389.1	15	138 393.6	157.8
24	7	4	737.21	.02	4	44 232.1	20	147 619.9	179.5
6 25	30.717	25	767.93	1843.02	25	46 075.1	1 25	156 846.1	202.7
26	7	6	798.65	.02	6	47 918.2	30	166 072.3	227.2
27	7	7	829.36	.02	7	49 761.2	35	175 298.5	253.2
28	7	8	860.08	.02	8	51 604.2	40	184 524.7	280.5
29	7	9	890.80	.02	9	53 447.2	45	193 750.9	309.3
6 30	30.717	30	921.51	1843.03	30	55 290.3	1 50	202 977.1	339.4
31	7	1	952.23	.03	1	57 133.3	55	212 203.3	371.0
32	7	2	982.95	.03	2	58 976.3	2 00	221 429	404
33	7	3	1 013.67	.03	3	60 819.4	3 00	332 143	909
34	7	4	1 044.38	.03	4	62 662.4	4 00	442 856	1 616
6 35	30.717	35	1 075.10	1843.03	35	64 505.4	5 00	553 567	2 525
36	7	6	1 105.82	.03	6	66 348.4	6 00	664 277	3 636
37	7	7	1 136.54	.03	7	68 191.5	7 00	774 984	4 949
38	7	8	1 167.25	.04	8	70 034.5	8 00	885 689	6 464
39	7	9	1 197.97	.04	9	71 877.6	9 00	996 390	8 180
6 40	30.717	40	1 228.69	1843.04	40	73 720.6	10 00	1 107 088	10 099
41	7	1	1 259.40	.04	1	75 563.6	11 00	1 217 783	12 220
42	7	2	1 290.12	.04	2	77 406.7	12 00	1 328 474	14 543
43	7	3	1 320.84	.04	3	79 249.7	13 00	1 439 160	17 067
44	7	4	1 351.56	.04	4	81 092.8	14 00	1 549 841	19 793
6 45	30.717	45	1 382.27	1843.04	45	82 935.8	15 00	1 660 518	22 721
46	7	6	1 412.97	.05	6	84 778.9	16 00	1 771 189	25 852
47	7	7	1 443.71	.05	7	86 621.9	17 00	1 881 854	29 185
48	7	8	1 474.42	.05	8	88 464.9	18 00	1 992 512	32 719
49	7	9	1 505.14	.05	9	90 308.0	19 00	2 103 164	36 454
6 50	30.718	50	1 535.86	1843.05	50	92 151.1	20 00	2 213 809	40 392
51	8	1	1 566.57	.05	1	93 994.1	21 00	2 324 446	44 532
52	8	2	1 597.29	.05	2	95 837.2	22 00	2 435 076	48 874
53	8	3	1 628.01	.05	3	97 680.2	23 00	2 545 698	53 418
54	8	4	1 658.72	.06	4	99 523.3	24 00	2 656 311	58 163
6 55	30.718	55	1 689.44	1843.06	55	101 366.3	25 00	2 766 915	63 109
56	8	6	1 720.16	.06	6	103 209.4	26 00	2 877 511	68 257
57	8	7	1 750.88	.06	7	105 052.4	27 00	2 988 097	73 607
58	8	8	1 781.59	.06	8	106 895.5	28 00	3 098 672	79 160
59	8	9	1 812.31	.06	9	108 738.6	29 00	3 209 237	84 915
6 60	30.718	60	1 843.03	1843.06	60	110 581.6	30 00	3 319 792	90 871

Latitude 7° to 8°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
• /														
7 00	30.693	61.39	92.08	122.77	153.47	184.16	214.85	245.55	276.24	1841.6	3683.2	5524.8	7366.4	9208.0
1	.692	.39	.08	.77	.46	.15	.84	.54	.23	1.5	3.1	4.6	6.1	7.7
2	.691	.39	.07	.76	.46	.15	.84	.54	.22	1.5	3.0	4.4	5.9	7.4
3	.690	.38	.07	.76	.45	.14	.83	.52	.21	1.4	2.8	4.2	5.6	7.0
4	.689	.38	.07	.75	.45	.13	.82	.51	.20	1.3	2.7	4.0	5.4	6.7
7 05	30.688	61.38	92.06	122.75	153.44	184.13	214.81	245.50	276.19	1841.3	3682.6	5523.8	7365.1	9206.4
6	.687	.38	.06	.75	.43	.12	.81	.50	.18	1.2	2.5	3.6	4.8	6.1
7	.686	.38	.06	.74	.43	.11	.80	.49	.17	1.1	2.3	3.4	4.6	5.7
8	.685	.37	.05	.74	.42	.11	.79	.48	.16	1.1	2.2	3.2	4.3	5.4
9	.683	.37	.05	.73	.42	.10	.79	.47	.15	1.0	2.0	3.0	4.1	5.0
7 10	30.682	61.37	92.05	122.73	153.41	184.09	214.78	245.46	276.14	1840.9	3681.9	5522.8	7363.8	9204.7
11	.681	.37	.04	.73	.41	.08	.77	.45	.13	0.8	1.8	2.6	3.5	4.4
12	.680	.36	.04	.72	.40	.08	.76	.44	.12	0.8	1.6	2.4	3.2	4.0
13	.679	.36	.04	.72	.40	.07	.76	.43	.11	0.7	1.4	2.2	3.0	3.7
14	.678	.36	.03	.71	.39	.07	.75	.42	.10	0.7	1.3	2.0	2.7	3.3
7 15	30.677	61.35	92.03	122.71	153.39	184.06	214.74	245.41	276.09	1840.6	3681.2	5521.8	7362.4	9203.0
16	.676	.35	.03	.70	.38	.05	.73	.41	.08	0.5	1.1	1.6	2.1	2.7
17	.675	.35	.02	.70	.38	.05	.72	.40	.07	0.5	0.9	1.4	1.9	2.4
18	.673	.35	.02	.69	.37	.04	.72	.39	.06	0.4	0.8	1.2	1.6	2.0
19	.672	.34	.02	.69	.37	.04	.71	.38	.05	0.4	0.6	1.0	1.4	1.7
7 20	30.671	61.34	92.01	122.68	153.36	184.03	214.70	245.37	276.04	1840.3	3680.5	5520.8	7361.1	9201.4
21	.670	.34	.01	.68	.35	.02	.69	.36	.03	0.2	0.4	0.6	0.8	1.0
22	.669	.34	.01	.67	.35	.01	.68	.35	.02	0.1	0.2	0.4	0.5	0.7
23	.668	.33	.00	.67	.34	.01	.68	.34	.01	0.1	0.1	0.2	0.3	0.3
24	.667	.33	.00	.66	.34	4.00	.67	.33	6.00	40.0	79.9	100.0	60.0	200.0
7 25	30.665	61.33	92.00	122.66	153.33	183.99	214.66	245.32	275.99	1839.9	3679.8	5519.8	7359.7	9199.6
26	.664	.33	1.99	.66	.32	.99	.65	.32	.98	9.9	9.7	9.6	9.4	9.3
27	.663	.33	.99	.65	.32	.98	.64	.31	.97	9.8	9.6	9.4	9.1	8.9
28	.662	.32	.99	.65	.31	.97	.64	.30	.96	9.7	9.4	9.1	8.9	8.6
29	.661	.32	.98	.64	.31	.97	.63	.29	.95	9.7	9.3	8.9	8.6	8.2
7 30	30.660	61.32	91.98	122.64	153.30	183.96	214.62	245.28	275.94	1839.6	3679.2	5518.7	7358.3	9197.9
31	.658	.32	.98	.64	.29	.95	.61	.27	.93	9.5	9.0	8.5	8.0	7.5
32	.657	.32	.97	.63	.29	.94	.60	.26	.92	9.4	8.9	8.3	7.7	7.2
33	.656	.31	.97	.63	.28	.94	.59	.25	.91	9.4	8.7	8.1	7.5	6.8
34	.655	.31	.96	.62	.28	.93	.58	.24	.90	9.3	8.6	7.9	7.2	6.5
7 35	30.654	61.31	91.96	122.62	153.27	183.92	214.57	245.23	275.88	1839.2	3678.4	5517.7	7356.9	9196.1
36	.653	.31	.96	.61	.26	.92	.57	.22	.87	9.2	8.3	7.5	6.6	5.8
37	.651	.31	.95	.61	.26	.91	.56	.21	.86	9.1	8.1	7.3	6.3	5.4
38	.650	.30	.95	.60	.25	.90	.55	.20	.85	9.0	8.0	7.0	6.1	5.1
39	.649	.30	.95	.60	.25	.90	.54	.19	.84	9.0	7.8	6.8	5.8	4.7
7 40	30.648	61.30	91.94	122.59	153.24	183.89	214.53	245.18	275.83	1838.9	3677.7	5516.6	7355.5	9194.4
41	.647	.30	.94	.59	.23	.88	.52	.17	.82	8.8	7.6	6.4	5.2	4.0
42	.645	.29	.94	.58	.23	.87	.51	.16	.81	8.7	7.4	6.2	4.9	3.6
43	.644	.29	.93	.58	.22	.87	.51	.15	.80	8.7	7.3	5.9	4.6	3.3
44	.643	.29	.93	.57	.22	.86	.50	.14	.79	8.6	7.1	5.7	4.3	2.9
7 45	30.642	61.28	91.92	122.57	153.21	183.85	214.49	245.13	275.77	1838.5	3677.0	5515.5	7354.0	9192.5
46	.640	.28	.92	.56	.20	.84	.48	.13	.76	8.4	6.9	5.3	3.7	2.1
47	.639	.28	.92	.56	.20	.83	.47	.12	.75	8.3	6.7	5.1	3.4	1.8
48	.638	.28	.91	.55	.19	.83	.47	.11	.74	8.3	6.6	4.8	3.2	1.4
49	.637	.27	.91	.55	.19	.82	.46	.10	.73	8.2	6.4	4.6	2.9	1.1
7 50	30.636	61.27	91.91	122.54	153.18	183.81	214.45	245.09	275.72	1838.1	3676.3	5514.4	7352.6	9190.7
51	.634	.27	.90	.54	.17	.80	.44	.08	.71	8.0	6.1	4.2	2.3	0.3
52	.633	.27	.90	.53	.17	.80	.43	.07	.70	8.0	6.0	4.0	2.0	0.0
53	.632	.26	.90	.53	.16	.79	.42	.06	.69	7.9	5.8	3.7	1.7	0.6
54	.631	.26	.89	.52	.16	.79	.41	.05	.68	7.9	5.7	3.5	1.4	0.3
7 55	30.630	61.26	91.89	122.52	153.15	183.78	214.40	245.04	275.66	1837.8	3675.5	5513.3	7351.1	9188.9
56	.628	.26	.89	.51	.14	.77	.40	.03	.65	7.7	5.4	3.1	0.8	0.5
57	.627	.26	.88	.51	.14	.76	.39	.02	.64	7.6	5.2	2.9	0.5	0.1
58	.626	.25	.88	.50	.13	.76	.38	.01	.63	7.6	5.1	2.6	0.2	0.0
59	.625	.25	.87	.50	.13	.75	.37	5.00	.62	7.5	4.9	2.4	0.0	0.0
7 60	30.623	61.25	91.87	122.49	153.12	183.74	214.36	244.99	275.61	1837.4	3674.8	5512.2	7349.6	9187.0

Latitude 7° to 8°—Meridional arcs.						Latitude 7°—Co-ordinates of curvature.		
Lat.	Value of 1''	Sums of seconds for middle latitude 7° 30'		Value of 1'	Continuous sums of minutes from latitude 7° 00'	Longitude.	X	Y
° ' "	Meters.	''	Meters.	Meters.	'	Meters.	° ' "	Meters.
7 00	30.718			1843.06				
1	8	1	30.72	.07	1	1 843.1	0 1	1 841.6
2	8	2	61.44	.07	2	3 686.1	2	3 683.2
3	8	3	92.16	.07	3	5 529.2	3	5 524.8
4	8	4	122.87	.07	4	7 372.3	4	7 366.4
7 05	30.718	5	153.59	1843.07	5	9 215.3	0 5	9 208.0
6	8	6	184.31	.07	6	11 058.4	6	11 049.7
7	8	7	215.03	.07	7	12 901.5	7	12 891.3
8	8	8	245.75	.08	8	14 744.6	8	14 732.9
9	8	9	276.47	.08	9	16 587.6	9	16 574.5
7 10	30.718	10	307.18	1843.08	10	18 430.7	0 10	18 416.1
11	8	1	337.90	.08	1	20 273.8	15	27 624.1
12	8	2	368.62	.08	2	22 116.9	20	36 832.1
13	8	3	399.34	.08	3	23 960.0	25	46 040.2
14	8	4	430.06	.08	4	25 803.0	30	55 248.2
7 15	30.718	15	460.78	1843.09	15	27 646.1	0 35	64 456.2
16	8	6	491.49	.09	6	29 489.2	40	73 664.3
17	8	7	522.21	.09	7	31 332.3	45	82 872.3
18	8	8	552.93	.09	8	33 175.4	50	92 080.3
19	8	9	583.65	.09	9	35 018.5	55	101 288.3
7 20	30.718	20	614.37	1843.09	20	36 861.6	1 00	110 496.4
21	8	1	645.09	.09	1	38 704.7	05	119 704.4
22	8	2	675.81	.10	2	40 547.8	10	128 912.4
23	8	3	706.52	.10	3	42 390.9	15	138 120.4
24	8	4	737.24	.10	4	44 234.0	20	147 328.4
7 25	30.718	25	767.96	1843.10	25	46 077.1	1 25	156 536.4
26	8	6	798.68	.10	6	47 920.2	30	165 744.4
27	8	7	829.40	.10	7	49 763.3	35	174 952.4
28	8	8	860.12	.10	8	51 606.4	40	184 160.4
29	8	9	890.83	.10	9	53 449.5	45	193 368.4
7 30	30.718	30	921.55	1843.11	30	55 292.6	1 50	202 576.3
31	8	1	952.27	.11	1	57 135.7	55	211 784.3
32	8	2	982.99	.11	2	58 978.8	2 00	220 992
33	8	3	1 013.71	.11	3	60 821.9	3 00	331 487
34	8	4	1 044.43	.11	4	62 665.0	4 00	441 981
7 35	30.719	35	1 075.15	1843.11	35	64 508.1	5 00	552 472
36	9	6	1 105.86	.11	6	66 351.2	6 00	662 961
37	9	7	1 136.58	.11	7	68 194.4	7 00	773 447
38	9	8	1 167.30	.11	8	70 037.5	8 00	883 929
39	9	9	1 198.02	.12	9	71 880.6	9 00	994 407
7 40	30.719	40	1 228.74	1843.12	40	73 723.7	10 00	1 104 881
41	9	1	1 259.46	.12	1	75 566.8	11 00	1 215 350
42	9	2	1 290.17	.12	2	77 409.9	12 00	1 325 813
43	9	3	1 320.89	.12	3	79 253.1	13 00	1 436 271
44	9	4	1 351.61	.12	4	81 096.2	14 00	1 546 722
7 45	30.719	45	1 382.33	1843.13	45	82 939.3	15 00	1 657 166
46	9	6	1 413.05	.13	6	84 782.4	16 00	1 767 602
47	9	7	1 443.77	.13	7	86 625.6	17 00	1 878 030
48	9	8	1 474.48	.13	8	88 468.7	18 00	1 988 450
49	9	9	1 505.20	.13	9	90 311.8	19 00	2 098 861
7 50	30.719	50	1 535.92	1843.13	50	92 155.0	20 00	2 209 263
51	9	1	1 566.64	.13	1	93 998.1	21 00	2 319 654
52	9	2	1 597.36	.14	2	95 841.2	22 00	2 430 035
53	9	3	1 628.08	.14	3	97 684.4	23 00	2 540 405
54	9	4	1 658.80	.14	4	99 527.5	24 00	2 650 764
7 55	30.719	55	1 689.51	1843.14	55	101 370.7	25 00	2 761 111
56	9	6	1 720.23	.14	6	103 213.8	26 00	2 871 444
57	9	7	1 750.95	.14	7	105 056.9	27 00	2 981 766
58	9	8	1 781.67	.15	8	106 900.1	28 00	3 092 073
59	9	9	1 812.39	.15	9	108 743.2	29 00	3 202 367
7 60	30.719	60	1 843.11	1843.15	60	110 586.4	30 00	3 312 646

Latitude 8° to 9°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
8 00	30.623	61.25	91.87	122.49	153.12	183.74	214.36	244.99	275.61	1837.4	3674.8	5512.2	7349.6	9187.0
1	.622	.25	.87	.49	.11	.73	.35	.98	.60	7.3	4.7	2.0	9.3	6.6
2	.621	.24	.86	.48	.11	.72	.34	.97	.59	7.2	4.5	1.8	9.0	6.2
3	.620	.24	.86	.48	.10	.72	.34	.96	.58	7.2	4.4	1.5	8.7	5.9
4	.618	.24	.85	.47	.09	.71	.33	.95	.57	7.1	4.2	1.3	8.4	5.5
8 05	30.617	61.23	91.85	122.47	153.08	183.70	214.32	244.94	275.55	1837.0	3674.1	5511.1	7348.1	9185.1
6	.616	.23	.85	.46	.08	.69	.31	.93	.54	6.9	3.9	0.9	7.8	4.7
7	.615	.23	.84	.46	.07	.69	.30	.92	.53	6.9	3.8	0.7	7.5	4.4
8	.613	.23	.84	.45	.06	.68	.29	.91	.52	6.8	3.6	0.4	7.2	4.0
9	.612	.22	.84	.45	.06	.68	.29	.90	.51	6.8	3.5	0.2	6.9	3.7
8 10	30.611	61.22	91.83	122.44	153.05	183.67	214.28	244.89	275.50	1836.7	3673.3	5510.0	7346.6	9183.3
11	.610	.22	.83	.44	.04	.66	.27	.88	.49	6.6	3.1	0.8	6.3	2.9
12	.608	.22	.82	.43	.04	.65	.26	.87	.48	6.5	3.0	0.5	6.0	2.5
13	.607	.21	.82	.43	.03	.65	.25	.86	.46	6.5	2.8	0.3	5.7	2.1
14	.606	.21	.82	.42	.03	.64	.24	.85	.45	6.4	2.7	0.0	5.4	1.7
8 15	30.604	61.21	91.81	122.42	153.02	183.63	214.23	244.83	275.44	1836.3	3672.5	5508.8	7345.1	9181.3
16	.603	.21	.81	.41	.01	.62	.23	.82	.43	6.2	2.4	8.6	4.8	0.9
17	.602	.21	.80	.41	.01	.61	.22	.81	.42	6.1	2.2	8.4	4.5	0.5
18	.601	.20	.80	.40	.00	.61	.21	.80	.40	6.1	2.1	8.1	4.1	80.2
19	.599	.20	.80	.40	3.00	.60	.20	.79	.39	6.0	1.9	7.9	3.8	79.8
8 20	30.598	61.20	91.79	122.39	152.99	183.59	214.19	244.78	275.38	1835.9	3671.8	5507.7	7343.5	9179.4
21	.597	.20	.79	.39	.98	.58	.18	.77	.37	5.8	1.6	7.5	3.2	9.0
22	.595	.19	.79	.38	.98	.57	.17	.76	.36	5.7	1.5	7.2	2.9	8.6
23	.594	.19	.78	.38	.97	.57	.16	.75	.35	5.7	1.3	7.0	2.6	8.3
24	.593	.19	.78	.37	.97	.56	.15	.74	.34	5.6	1.2	6.7	2.3	7.9
8 25	30.592	61.18	91.77	122.37	152.96	183.55	214.14	244.73	275.32	1835.5	3671.0	5506.5	7342.0	9177.5
26	.590	.18	.77	.36	.95	.54	.14	.72	.31	5.4	0.8	6.3	1.7	7.1
27	.589	.18	.77	.36	.95	.53	.13	.71	.30	5.3	0.7	6.0	1.4	6.7
28	.588	.18	.76	.35	.94	.53	.12	.70	.29	5.3	0.5	5.8	1.0	6.3
29	.586	.17	.76	.35	.94	.52	.11	.69	.28	5.2	0.4	5.5	0.7	5.9
8 30	30.585	61.17	91.76	122.34	152.93	183.51	214.10	244.68	275.27	1835.1	3670.2	5505.3	7340.4	9175.5
31	.584	.17	.75	.34	.92	.50	.09	.67	.26	5.0	70.0	5.1	40.1	5.1
32	.582	.16	.75	.33	.92	.49	.08	.66	.25	4.9	69.9	4.8	39.8	4.7
33	.581	.16	.74	.33	.91	.49	.07	.65	.23	4.9	9.7	4.6	9.4	4.3
34	.580	.16	.74	.32	.90	.48	.06	.64	.22	4.8	9.6	4.3	9.1	3.9
8 35	30.578	61.15	91.74	122.32	152.89	183.47	214.05	244.62	275.21	1834.7	3669.4	5504.1	7338.8	9173.5
36	.577	.15	.73	.31	.89	.46	.04	.61	.20	4.6	9.2	3.9	8.5	3.1
37	.576	.15	.73	.31	.88	.45	.03	.60	.19	4.5	9.1	3.6	8.2	2.7
38	.574	.15	.72	.30	.87	.45	.02	.59	.17	4.5	8.9	3.4	7.8	2.3
39	.573	.14	.72	.30	.87	.44	.01	.58	.16	4.4	8.8	3.1	7.5	1.9
8 40	30.572	61.14	91.72	122.29	152.86	183.43	214.00	244.57	275.15	1834.3	3668.6	5502.9	7337.2	9171.5
41	.570	.14	.71	.28	.85	.42	3.99	.56	.14	4.2	8.4	2.7	6.9	1.5
42	.569	.14	.71	.28	.85	.41	.98	.55	.12	4.1	8.3	2.4	6.6	0.7
43	.568	.13	.70	.27	.84	.41	.97	.54	.11	4.1	8.1	2.2	6.2	70.3
44	.566	.13	.70	.27	.83	.40	.96	.53	.10	4.0	8.0	1.9	5.9	69.9
8 45	30.565	61.13	91.70	122.26	152.82	183.39	213.95	244.51	275.09	1833.9	3667.8	5501.7	7335.6	9169.5
46	.564	.13	.69	.25	.82	.38	.95	.50	.07	3.8	7.6	1.5	5.3	9.1
47	.562	.13	.69	.25	.81	.37	.94	.49	.06	3.7	7.5	1.2	4.9	8.7
48	.561	.12	.68	.24	.80	.36	.93	.48	.05	3.6	7.3	1.0	4.6	8.2
49	.559	.12	.68	.24	.80	.36	.92	.47	.03	3.6	7.2	0.7	4.2	7.8
8 50	30.558	61.12	91.67	122.23	152.79	183.35	213.91	244.46	275.02	1833.5	3667.0	5500.5	7333.9	9167.4
51	.557	.12	.67	.23	.78	.34	.90	.45	.01	3.4	6.8	0.2	3.6	7.0
52	.555	.11	.67	.22	.78	.33	.89	.44	5.00	3.3	6.6	5500.0	3.3	6.6
53	.554	.11	.66	.22	.77	.33	.88	.43	4.98	3.3	6.5	499.7	2.9	6.1
54	.552	.11	.66	.21	.76	.32	.87	.42	.97	3.2	6.3	9.5	2.6	5.7
8 55	30.551	61.10	91.65	122.21	152.75	183.31	213.86	244.40	274.96	1833.1	3666.1	5499.2	7332.3	9165.3
56	.550	.10	.65	.20	.75	.30	.85	.39	.95	3.0	5.9	9.0	2.0	4.9
57	.548	.10	.64	.20	.74	.29	.84	.38	.94	2.9	5.8	8.7	1.6	4.5
58	.547	.10	.64	.19	.73	.28	.83	.37	.92	2.8	5.6	8.5	1.3	4.1
59	.546	.09	.64	.19	.73	.28	.82	.36	.91	2.8	5.5	8.2	0.9	3.7
8 60	30.544	61.09	91.63	122.18	152.72	183.27	213.81	244.35	274.90	1832.7	3665.3	5498.0	7330.6	9163.3

Lat.	Latitude 8° to 9°—Meridional arcs.						Latitude 8°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 8° 30'		Value of 1'	Continuous sums of minutes from latitude 8° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
8 00	30.719			1843.15			0 1	1 837.4	
1	9	1	30.72	.15	1	1 843.2	0 2	3 674.8	0.1
2	9	2	61.44	.15	2	3 686.3	3	5 512.2	0.3
3	9	3	92.16	.16	3	5 529.5	4	7 349.6	0.6
4	9	4	122.88	.16	4	7 372.6	0 5	9 187.0	0.9
8 05	30.719	5	153.60	1843.16	5	9 215.8	0 6	11 024.4	1.3
6	9	6	184.32	.16	6	11 058.9	7	12 861.9	1.8
7	9	7	215.04	.16	7	12 902.1	8	14 699.3	2.4
8	9	8	245.76	.16	8	14 745.3	9	16 536.7	3.0
9	9	9	276.48	.16	9	16 588.4	0 10	18 374.1	3.7
8 10	30.719	10	307.20	1843.17	10	18 431.6	15	27 561.1	8.4
11	9	1	337.92	.17	1	20 274.8	20	36 748.2	14.9
12	19	2	368.64	.17	2	22 117.9	25	45 935.2	23.2
13	20	3	399.36	.17	3	23 961.1	30	55 122.3	33.5
14	0	4	430.08	.17	4	25 804.3	0 35	64 309.3	45.6
8 15	30.720	15	460.80	1843.17	15	27 647.4	40	73 496.4	59.5
16	0	5	491.52	.17	5	29 490.6	45	82 683.4	75.3
17	0	6	522.24	.18	6	31 333.8	50	91 870.4	93.0
18	0	7	552.96	.18	7	33 177.0	55	101 057.5	112.5
19	0	8	583.68	.18	8	35 020.2	0 60	110 244.5	133.9
8 20	30.720	20	614.40	1843.18	20	36 863.3	05	119 431.5	157.1
21	0	1	645.12	.18	1	38 706.5	10	128 618.5	182.2
22	0	2	675.84	.18	2	40 549.7	15	137 805.5	209.2
23	0	3	706.56	.19	3	42 392.9	20	146 992.5	238.0
24	0	4	737.28	.19	4	44 236.1	0 25	156 179.5	268.7
8 25	30.720	25	768.00	1843.19	25	46 079.3	30	165 366.5	301.3
26	0	5	798.72	.19	5	47 922.5	35	174 553.4	335.7
27	0	6	829.44	.19	6	49 765.6	40	183 740.4	371.9
28	0	7	860.16	.19	7	51 608.8	45	192 927.4	410.0
29	0	8	890.88	.19	8	53 452.0	0 50	202 114.3	450.0
8 30	30.720	30	921.60	1843.20	30	55 295.2	55	211 301.3	491.9
31	0	1	952.32	.20	1	57 138.4	2 00	220 488	536
32	0	2	983.04	.20	2	58 981.6	3 00	330 730	1 205
33	0	3	1 013.76	.20	3	60 824.8	4 00	440 971	2 142
34	0	4	1 044.48	.20	4	62 668.0	0 50	551 209	3 347
8 35	30.720	35	1 075.20	1843.20	35	64 511.2	6 00	661 444	4 820
36	0	5	1 105.92	.20	5	66 354.4	7 00	771 675	6 561
37	0	6	1 136.64	.21	6	68 197.6	8 00	881 901	8 569
38	0	7	1 167.36	.21	7	70 040.8	9 00	992 122	10 845
39	0	8	1 198.08	.21	8	71 884.0	0 100	1 102 337	13 389
8 40	30.720	40	1 228.80	1843.21	40	73 727.2	11 00	1 212 546	16 200
41	0	1	1 259.52	.21	1	75 570.4	12 00	1 322 747	19 279
42	0	2	1 290.24	.21	2	77 413.6	13 00	1 432 940	22 626
43	0	3	1 320.96	.22	3	79 256.8	14 00	1 543 126	26 240
44	0	4	1 351.68	.22	4	81 100.1	0 150	1 653 302	30 123
8 45	30.720	45	1 382.40	1843.22	45	82 943.3	16 00	1 763 469	34 274
46	0	5	1 413.12	.22	5	84 786.5	17 00	1 873 626	38 692
47	0	6	1 443.84	.22	6	86 629.7	18 00	1 983 771	43 378
48	0	7	1 474.56	.22	7	88 472.9	19 00	2 093 904	48 330
49	0	8	1 505.28	.22	8	90 316.2	0 200	2 204 024	53 548
8 50	30.720	50	1 536.00	1843.23	50	92 159.4	21 00	2 314 131	59 034
51	0	1	1 566.72	.23	1	94 002.6	22 00	2 424 225	64 789
52	0	2	1 597.44	.23	2	95 845.9	23 00	2 534 305	70 811
53	1	3	1 628.16	.23	3	97 689.1	24 00	2 644 370	77 101
54	1	4	1 658.88	.23	4	99 532.3	0 250	2 754 420	83 658
8 55	30.721	55	1 689.60	1843.23	55	101 375.6	26 00	2 864 454	90 482
56	1	5	1 720.32	.24	5	103 218.8	27 00	2 974 470	97 573
57	1	6	1 751.04	.24	6	105 062.0	28 00	3 084 468	104 932
58	1	7	1 781.76	.24	7	106 905.3	29 00	3 194 449	112 558
59	1	8	1 812.48	.24	8	108 748.5	30 00	3 304 411	120 451
8 60	30.721	60	1 843.20	1843.24	60	110 591.8			

Latitude 9° to 10°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
9 00	30.544	61.09	91.63	122.18	152.72	183.27	213.81	244.35	274.90	1832.7	3665.3	5498.0	7330.6	9163.3
1	.543	.09	.63	.17	.71	.26	.80	.34	.89	2.6	5.1	7.7	30.3	2.9
2	.541	.08	.62	.17	.71	.25	.79	.33	.87	2.5	5.0	7.5	29.9	2.4
3	.540	.08	.62	.16	.70	.24	.78	.32	.86	2.4	4.8	7.2	9.6	2.0
4	.538	.08	.61	.16	.69	.23	.77	.31	.85	2.3	4.7	7.0	9.2	1.5
9 05	30.537	61.07	91.61	122.15	152.68	183.22	213.76	244.29	274.83	1832.2	3664.5	5496.7	7328.9	9161.1
6	.536	.07	.61	.14	.68	.21	.75	.28	.82	2.1	4.3	6.4	8.6	0.7
7	.534	.07	.60	.14	.67	.21	.74	.27	.81	2.1	4.1	6.2	8.2	60.3
8	.533	.07	.60	.13	.66	.20	.73	.26	.80	2.0	4.0	5.9	7.9	59.8
9	.531	.06	.59	.13	.66	.19	.72	.25	.78	1.9	3.8	5.7	7.5	9.4
9 10	30.530	61.06	91.59	122.12	152.65	183.18	213.71	244.24	274.77	1831.8	3663.6	5495.4	7327.2	9159.0
11	.529	.06	.59	.11	.64	.17	.70	.23	.76	1.7	3.4	5.1	6.9	8.6
12	.527	.05	.58	.11	.64	.16	.69	.22	.74	1.6	3.3	4.9	6.5	8.2
13	.526	.05	.58	.10	.63	.15	.68	.21	.73	1.5	3.1	4.6	6.2	7.7
14	.524	.05	.57	.10	.62	.15	.67	.20	.72	1.5	3.0	4.4	5.8	7.3
9 15	30.523	61.04	91.57	122.09	152.61	183.14	213.66	244.18	274.70	1831.4	3662.8	5494.1	7325.5	9156.9
16	.522	.04	.57	.08	.61	.13	.65	.17	.69	1.3	2.6	3.8	5.2	6.5
17	.520	.04	.56	.08	.60	.12	.64	.16	.68	1.2	2.4	3.6	4.8	6.0
18	.519	.04	.56	.07	.59	.11	.63	.15	.67	1.1	2.3	3.3	4.5	5.6
19	.517	.03	.55	.07	.59	.10	.62	.14	.65	1.0	2.1	3.1	4.1	5.1
9 20	30.516	61.03	91.55	122.06	152.58	183.09	213.61	244.13	274.64	1830.9	3661.9	5492.8	7323.8	9154.7
21	.514	.03	.54	.05	.57	.08	.60	.12	.63	0.8	1.7	2.5	3.4	4.3
22	.513	.02	.54	.05	.57	.07	.59	.11	.61	0.7	1.5	2.3	3.1	3.8
23	.511	.02	.53	.04	.56	.07	.58	.09	.60	0.7	1.4	2.0	2.7	3.4
24	.510	.02	.53	.04	.55	.06	.57	.08	.59	0.6	1.2	1.8	2.4	2.9
9 25	30.508	61.01	91.53	122.03	152.54	183.05	213.56	244.07	274.57	1830.5	3661.0	5491.5	7322.0	9152.5
26	.507	.01	.52	.02	.54	.04	.55	.06	.56	0.4	0.8	1.2	1.7	2.1
27	.505	.01	.52	.02	.53	.03	.54	.05	.55	0.3	0.6	1.0	1.3	1.6
28	.504	.01	.51	.01	.52	.03	.53	.03	.54	0.3	0.5	0.7	1.0	1.2
29	.502	.00	.51	.01	.52	.02	.52	.02	.52	0.2	0.3	0.5	0.6	0.7
9 30	30.501	61.00	91.50	122.00	152.51	183.01	213.51	244.01	274.51	1830.1	3660.1	5490.2	7320.3	9150.3
31	.500	1.00	.50	1.99	.50	3.00	.50	4.00	.50	30.0	59.9	89.9	19.9	49.9
32	.498	0.99	.49	.99	.49	2.99	.49	3.99	.48	29.9	9.7	9.7	9.6	9.4
33	.497	.99	.49	.98	.49	.98	.48	.97	.47	9.8	9.6	9.4	9.2	9.0
34	.495	.99	.48	.98	.48	.97	.47	.96	.46	9.7	9.4	9.2	8.9	8.5
9 35	30.494	60.98	91.48	121.97	152.47	182.96	213.46	243.95	274.44	1829.6	3659.2	5488.9	7318.5	9148.1
36	.492	.98	.48	.96	.46	.96	.44	.94	.43	9.6	9.0	8.6	8.1	7.7
37	.491	.98	.47	.96	.45	.95	.43	.93	.42	9.5	8.9	8.3	7.8	7.2
38	.489	.98	.47	.95	.45	.94	.42	.91	.41	9.4	8.7	8.1	7.4	6.8
39	.488	.97	.46	.95	.44	.93	.41	.90	.39	9.3	8.6	7.8	7.1	6.3
9 40	30.486	60.97	91.46	121.94	152.43	182.92	213.40	243.89	274.38	1829.2	3658.4	5487.5	7316.7	9145.9
41	.485	.97	.45	.93	.42	.91	.39	.88	.37	9.1	8.2	7.2	6.3	5.4
42	.483	.96	.45	.93	.42	.90	.38	.87	.35	9.0	8.0	7.0	6.0	5.0
43	.482	.96	.45	.92	.41	.89	.37	.85	.34	8.9	7.8	6.7	5.6	4.5
44	.480	.96	.44	.92	.40	.88	.36	.84	.32	8.8	7.6	6.5	5.3	4.1
9 45	30.479	60.95	91.44	121.91	152.39	182.87	213.35	243.83	274.31	1828.7	3657.4	5486.2	7314.9	9143.6
46	.477	.95	.43	.90	.39	.86	.34	.82	.30	8.6	7.2	5.9	4.5	3.1
47	.476	.95	.43	.90	.38	.85	.33	.81	.28	8.5	7.0	5.6	4.2	2.7
48	.474	.95	.42	.89	.37	.85	.32	.79	.27	8.5	6.9	5.4	3.8	2.2
49	.473	.94	.42	.89	.37	.84	.31	.78	.25	8.4	6.7	5.1	3.5	1.8
9 50	30.471	60.94	91.41	121.88	152.36	182.83	213.30	243.77	274.24	1828.3	3656.5	5484.8	7313.1	9141.3
51	.469	.94	.41	.87	.35	.82	.29	.76	.23	8.2	6.3	4.5	2.7	0.8
52	.468	.93	.40	.87	.34	.81	.28	.75	.21	8.1	6.1	4.2	2.3	40.4
53	.466	.93	.40	.86	.34	.80	.27	.73	.20	8.0	6.0	4.0	2.0	39.9
54	.465	.93	.39	.86	.33	.79	.26	.72	.18	7.9	5.8	3.7	1.6	9.5
9 55	30.463	60.92	91.39	121.85	152.32	182.78	213.25	243.71	274.17	1827.8	3655.6	5483.4	7311.2	9139.0
56	.462	.92	.39	.84	.31	.77	.23	.70	.16	7.7	5.4	3.1	0.8	8.5
57	.460	.92	.38	.84	.30	.76	.22	.69	.14	7.6	5.2	2.8	0.5	8.1
58	.459	.92	.38	.83	.30	.75	.21	.67	.13	7.5	5.1	2.6	10.1	7.6
59	.457	.91	.37	.83	.29	.74	.20	.66	.11	7.4	4.9	2.3	09.8	7.2
9 60	30.450	60.91	91.37	121.82	152.28	182.73	213.19	243.65	274.10	1827.3	3654.7	5482.0	7309.4	9136.7

		Latitude 9° to 10°—Meridional arcs.					Latitude 9°—Co-ordinates of curvature.			
Lat.		Value of 1"	Sums of seconds for middle latitude 9° 30'		Value of 1'	Continuous sums of minutes from latitude 9° 00'	Longitude.	X	Y	
° /		Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
9 00	30.721				1843.24					
1	1	1	1	30.72	.25	1	1 843.2	0 1	1 832.6	
2	1	2	2	61.44	.25	2	3 686.5	2	3 665.3	0.2
3	1	3	3	92.16	.25	3	5 529.7	3	5 498.0	0.4
4	1	4	4	122.89	.25	4	7 373.0	4	7 330.6	0.7
9 05	30.721	5	5	153.61	1843.25	5	9 216.2	0 5	9 163.3	1.0
6	1	6	6	184.33	.25	6	11 059.5	6	10 995.9	1.5
7	1	7	7	215.05	.26	7	12 902.8	7	12 828.6	2.0
8	1	8	8	245.77	.26	8	14 746.0	8	14 661.2	2.7
9	1	9	9	276.49	.26	9	16 589.3	9	16 493.9	3.4
9 10	30.721	10	10	307.22	1843.26	10	18 432.5	0 10	18 326.5	4.2
11	1	1	1	337.94	.26	1	20 275.8	15	27 489.8	9.4
12	1	2	2	368.66	.26	2	22 119.1	20	36 653.1	16.7
13	1	3	3	399.38	.27	3	23 962.3	25	45 816.4	26.1
14	1	4	4	430.10	.27	4	25 805.6	30	54 979.6	37.5
9 15	30.721	15	15	460.82	1843.27	15	27 648.9	0 35	64 142.9	51.1
16	1	6	6	491.55	.27	6	29 492.1	40	73 306.2	66.7
17	1	7	7	522.27	.27	7	31 335.4	45	82 469.4	84.4
18	1	8	8	552.99	.28	8	33 178.7	50	91 632.7	104.2
19	1	9	9	583.71	.28	9	35 022.0	55	100 795.9	126.1
9 20	30.721	20	20	614.43	1843.28	20	36 865.3	1 00	109 959.2	150.1
21	1	1	1	645.15	.28	1	38 708.5	05	119 122.4	176.2
22	1	2	2	675.88	.28	2	40 551.8	10	128 285.6	204.3
23	1	3	3	706.60	.28	3	42 395.1	15	137 448.9	234.6
24	1	4	4	737.32	.29	4	44 238.4	20	146 612.1	266.9
9 25	30.721	25	25	768.04	1843.29	25	46 081.7	1 25	155 775.3	301.3
26	1	6	6	798.76	.29	6	47 925.0	30	164 938.5	337.8
27	2	7	7	829.48	.29	7	49 768.3	35	174 101.7	376.3
28	2	8	8	860.21	.29	8	51 611.5	40	183 264.8	417.0
29	2	9	9	890.93	.29	9	53 454.8	45	192 428.0	459.7
9 30	30.722	30	30	921.65	1843.30	30	55 298.1	1 50	201 591.2	504.5
31	2	1	1	952.37	.30	1	57 141.4	55	210 754.3	551.4
32	2	2	2	983.09	.30	2	58 984.7	2 00	219 917	600
33	2	3	3	1 013.81	.30	3	60 828.0	3 00	329 874	1 351
34	2	4	4	1 044.53	.30	4	62 671.3	4 00	439 828	2 402
9 35	30.722	35	35	1 075.26	1843.31	35	64 514.6	5 00	549 779	3 753
36	2	6	6	1 105.98	.31	6	66 357.9	6 00	659 726	5 404
37	2	7	7	1 136.70	.31	7	68 201.2	7 00	769 668	7 355
38	2	8	8	1 167.42	.31	8	70 044.6	8 00	879 604	9 607
39	2	9	9	1 198.14	.31	9	71 887.9	9 00	989 534	12 158
9 40	30.722	40	40	1 228.86	1843.31	40	73 731.2	10 00	1 099 456	15 010
41	2	1	1	1 259.59	.32	1	75 574.5	11 00	1 209 370	18 162
42	2	2	2	1 290.31	.32	2	77 417.8	12 00	1 319 275	21 614
43	2	3	3	1 321.03	.32	3	79 261.1	13 00	1 429 171	25 367
44	2	4	4	1 351.75	.32	4	81 104.5	14 00	1 539 055	29 419
9 45	30.722	45	45	1 382.47	1843.32	45	82 947.8	15 00	1 648 928	33 770
46	2	6	6	1 413.19	.33	6	84 791.1	16 00	1 758 789	38 422
47	2	7	7	1 443.92	.33	7	86 634.4	17 00	1 868 637	43 374
48	2	8	8	1 474.64	.33	8	88 477.8	18 00	1 978 471	48 626
49	2	9	9	1 505.36	.33	9	90 321.1	19 00	2 088 289	54 178
9 50	30.722	50	50	1 536.08	1843.33	50	92 164.4	20 00	2 198 093	60 029
51	2	1	1	1 566.80	.33	1	94 007.7	21 00	2 307 880	66 180
52	2	2	2	1 597.52	.34	2	95 851.1	22 00	2 417 650	72 631
53	2	3	3	1 628.25	.34	3	97 694.4	23 00	2 527 402	79 382
54	2	4	4	1 658.97	.34	4	99 537.8	24 00	2 637 136	86 433
9 55	30.722	55	55	1 689.69	1843.34	55	101 381.1	25 00	2 746 848	93 783
56	2	6	6	1 720.41	.34	6	103 224.4	26 00	2 856 541	101 432
57	2	7	7	1 751.13	.35	7	105 067.8	27 00	2 966 213	109 381
58	2	8	8	1 781.85	.35	8	106 911.1	28 00	3 075 862	117 629
59	2	9	9	1 812.58	.35	9	108 754.4	29 00	3 185 488	126 177
9 60	30.723	60	60	1 843.30	1843.35	60	110 597.8	30 00	3 295 091	135 024

Latitude 10° to 11°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
10 00	30.456	60.91	91.37	121.82	152.28	182.73	213.19	243.65	274.10	1827.3	3654.7	5482.0	7309.4	9136.7
1	.454	.91	.36	.81	.27	.72	.18	.64	.09	7.2	4.5	1.7	9.0	6.2
2	.453	.90	.36	.81	.26	.71	.17	.62	.07	7.1	4.3	1.4	8.6	5.8
3	.451	.90	.35	.80	.26	.71	.16	.61	.06	7.1	4.1	1.2	8.3	5.3
4	.450	.90	.35	.80	.25	.70	.15	.60	.04	7.0	3.9	0.9	7.9	4.9
10 05	30.448	60.89	91.34	121.79	152.24	182.69	213.13	243.58	274.03	1826.9	3653.7	5480.6	7307.5	9134.4
6	.446	.89	.34	.78	.23	.68	.12	.57	.02	6.8	3.5	0.3	7.1	3.9
7	.445	.89	.33	.78	.22	.67	.11	.56	4.00	6.7	3.3	80.0	6.7	3.4
8	.443	.89	.33	.77	.22	.66	.10	.55	3.99	6.6	3.2	79.8	6.4	3.0
9	.442	.88	.33	.77	.21	.65	.09	.53	.97	6.5	3.0	9.5	6.0	2.5
10 10	30.440	60.88	91.32	121.76	152.20	182.64	213.08	243.52	273.96	1826.4	3652.8	5479.2	7305.6	9132.0
11	.438	.88	.32	.75	.19	.63	.07	.51	.95	6.3	2.6	8.9	5.2	1.5
12	.437	.87	.31	.75	.18	.62	.06	.50	.93	6.2	2.4	8.6	4.8	1.0
13	.435	.87	.31	.74	.18	.61	.05	.48	.92	6.1	2.3	8.4	4.5	0.6
14	.434	.87	.30	.74	.17	.60	.04	.47	.90	6.0	2.1	8.1	4.1	30.1
10 15	30.432	60.86	91.30	121.73	152.16	182.59	213.02	243.46	273.89	1825.9	3651.9	5477.8	7303.7	9129.6
16	.430	.86	.29	.72	.15	.58	.01	.45	.88	5.8	1.7	7.5	3.3	9.1
17	.429	.86	.29	.72	.14	.57	3.00	.44	.86	5.7	1.5	7.2	2.9	8.7
18	.427	.86	.28	.71	.14	.57	2.99	.42	.85	5.7	1.3	7.0	2.6	8.2
19	.426	.85	.28	.71	.13	.56	.98	.41	.83	5.6	1.1	6.7	2.2	7.8
10 20	30.424	60.85	91.27	121.70	152.12	182.55	212.97	243.40	273.82	1825.5	3650.9	5476.4	7301.8	9127.3
21	.423	.85	.27	.69	.11	.54	.96	.39	.81	5.4	0.7	6.1	1.4	6.8
22	.421	.84	.26	.69	.10	.53	.95	.37	.79	5.3	0.5	5.8	1.0	6.3
23	.419	.84	.26	.68	.10	.52	.94	.36	.78	5.2	0.3	5.5	0.7	5.8
24	.418	.84	.25	.67	.09	.51	.93	.34	.76	5.1	50.1	5.2	300.3	5.3
10 25	30.416	60.83	91.25	121.67	152.08	182.50	212.91	243.33	273.75	1825.0	3649.9	5474.9	7299.9	9124.8
26	.414	.83	.24	.66	.07	.49	.90	.32	.73	4.9	9.7	4.6	9.5	4.3
27	.413	.83	.24	.65	.06	.48	.89	.30	.72	4.8	9.5	4.3	9.1	3.8
28	.411	.83	.23	.64	.06	.47	.88	.29	.70	4.7	9.4	4.0	8.7	3.4
29	.410	.82	.23	.64	.05	.46	.87	.27	.69	4.6	9.2	3.7	8.3	2.9
10 30	30.408	60.82	91.22	121.63	152.04	182.45	212.86	243.26	273.67	1824.5	3649.0	5473.4	7297.9	9122.4
31	.406	.82	.22	.62	.03	.44	.85	.25	.66	4.4	8.8	3.1	7.5	1.9
32	.405	.81	.21	.62	.02	.43	.84	.23	.64	4.3	8.6	2.8	7.1	1.4
33	.403	.81	.21	.61	.02	.42	.82	.22	.63	4.2	8.4	2.6	6.7	0.9
34	.401	.80	.20	.61	.01	.41	.81	.21	.61	4.1	8.2	2.3	6.3	20.4
10 35	30.400	60.80	91.20	121.60	152.00	182.40	212.80	243.20	273.60	1824.0	3648.0	5472.0	7295.9	9119.9
36	.398	.80	.19	.59	1.99	.39	.79	.18	.58	3.9	7.8	1.7	5.5	9.4
37	.396	.79	.19	.59	.98	.38	.78	.17	.57	3.8	7.6	1.4	5.1	8.9
38	.395	.79	.18	.58	.98	.37	.76	.16	.55	3.7	7.4	1.1	4.8	8.5
39	.393	.78	.18	.58	.97	.36	.75	.14	.54	3.6	7.2	0.8	4.4	8.0
10 40	30.392	60.78	91.17	121.57	151.96	182.35	212.74	243.13	273.52	1823.5	3647.0	5470.5	7294.0	9117.5
41	.390	.78	.17	.56	.95	.34	.73	.12	.51	3.4	6.8	70.2	3.6	7.0
42	.388	.77	.16	.56	.94	.33	.72	.10	.49	3.3	6.6	69.9	3.2	6.5
43	.387	.77	.16	.55	.93	.32	.70	.09	.48	3.2	6.4	9.6	2.8	6.0
44	.385	.77	.15	.54	.92	.31	.69	.08	.46	3.1	6.2	9.3	2.4	5.5
10 45	30.383	60.76	91.15	121.53	151.91	182.30	212.68	243.06	273.45	1823.0	3646.0	5469.0	7292.0	9115.0
46	.382	.76	.14	.53	.91	.29	.67	.05	.43	2.9	5.8	8.7	1.6	4.5
47	.380	.76	.14	.52	.90	.28	.66	.04	.42	2.8	5.6	8.4	1.2	4.0
48	.378	.76	.13	.51	.89	.27	.64	.03	.40	2.7	5.4	8.1	0.8	3.5
49	.377	.75	.13	.51	.88	.26	.63	.01	.39	2.6	5.2	7.8	0.4	3.0
10 50	30.375	60.75	91.12	121.50	151.87	182.25	212.62	243.00	273.37	1822.5	3645.0	5467.5	7290.0	9112.5
51	.373	.75	.12	.49	.86	.24	.61	2.99	.36	2.4	4.8	7.2	89.6	2.0
52	.372	.74	.11	.49	.85	.23	.60	.97	.34	2.3	4.6	6.9	9.2	1.5
53	.370	.74	.11	.48	.85	.22	.59	.96	.33	2.2	4.4	6.6	8.7	0.9
54	.368	.74	.10	.47	.84	.21	.58	.94	.31	2.1	4.2	6.3	8.3	10.4
10 55	30.366	60.73	91.10	121.47	151.83	182.20	212.56	242.93	273.30	1822.0	3644.0	5466.0	7287.9	9109.9
56	.365	.73	.09	.46	.82	.19	.55	.92	.28	1.9	3.8	5.7	7.5	9.4
57	.363	.73	.09	.45	.81	.18	.54	.90	.27	1.8	3.6	5.4	7.1	8.9
58	.361	.73	.08	.44	.81	.17	.53	.89	.25	1.7	3.4	5.0	6.7	8.4
59	.360	.72	.08	.44	.80	.16	.52	.87	.24	1.6	3.2	4.7	6.3	7.9
10 60	30.358	60.72	91.07	121.43	151.79	182.15	212.51	242.86	273.22	1821.5	3643.0	5464.4	7285.9	9107.4

Lat.	Latitude 10° to 11°—Meridional arcs.						Latitude 10°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 10° 30'		Value of 1'	Continuous sums of minutes from latitude 10° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
10 00	30.723			1843.35					
1	3	1	30.72	.35	1	1 843.4	0 1	1 827.3	
2	3	2	61.45	.35	2	3 686.7	2	3 654.7	0.2
3	3	3	92.17	.36	3	5 530.1	3	5 482.0	0.4
4	3	4	122.89	.36	4	7 373.4	4	7 309.4	0.7
10 05	30.723	5	153.62	1843.36	5	9 216.8	0 5	9 136.7	1.2
6	3	6	184.34	.36	6	11 060.1	6	10 964.1	1.7
7	3	7	215.06	.36	7	12 903.5	7	12 791.4	2.3
8	3	8	245.79	.37	8	14 746.9	8	14 618.7	3.0
9	3	9	276.51	.37	9	16 590.2	9	16 446.1	3.7
10 10	30.723	10	307.23	1843.37	10	18 433.6	0 10	18 273.4	4.6
1	3	1	337.96	.37	1	20 277.0	15	27 410.2	10.4
2	3	2	368.68	.37	2	22 120.4	20	36 546.9	18.5
3	3	3	399.41	.38	3	23 963.7	25	45 683.6	28.8
4	3	4	430.13	.38	4	25 807.1	30	54 820.3	41.5
10 15	30.723	15	460.85	1843.38	15	27 650.5	0 35	63 957.0	56.5
6	3	6	491.58	.38	6	29 493.9	40	73 093.7	73.8
7	3	7	522.30	.38	7	31 337.3	45	82 230.4	93.5
8	3	8	553.02	.39	8	33 180.7	50	91 367.1	115.4
9	3	9	583.75	.39	9	35 024.0	55	100 503.8	139.6
10 20	30.723	20	614.47	1843.39	20	36 867.4	1 00	109 640.5	166.1
1	3	1	645.19	.39	1	38 710.8	05	118 777.2	195.0
2	3	2	675.92	.39	2	40 554.2	10	127 913.9	226.1
3	3	3	706.64	.40	3	42 397.6	15	137 050.5	259.6
4	3	4	737.36	.40	4	44 241.0	20	146 187.2	295.4
10 25	30.723	25	768.09	1843.40	25	46 084.4	1 25	155 323.8	333.4
6	3	6	798.81	.40	6	47 927.8	30	164 460.5	373.8
7	3	7	829.53	.40	7	49 771.2	35	173 597.1	416.5
8	3	8	860.26	.41	8	51 614.6	40	182 733.7	461.5
9	3	9	890.98	.41	9	53 458.0	45	191 870.3	508.8
10 30	30.723	30	921.70	1843.41	30	55 301.4	1 50	201 006.9	558.4
1	3	1	952.43	.41	1	57 144.8	55	210 143.5	610.3
2	4	2	983.15	.41	2	58 988.2	2 00	219 280	665
3	4	3	1 013.87	.41	3	60 831.6	3 00	328 917	1 495
4	4	4	1 044.60	.42	4	62 675.0	4 00	438 552	2 658
10 35	30.724	35	1 075.32	1843.42	35	64 518.5	5 00	548 182	4 154
6	4	6	1 106.05	.42	6	66 361.9	6 00	657 808	5 981
7	4	7	1 136.77	.42	7	68 205.3	7 00	767 427	8 140
8	4	8	1 167.49	.42	8	70 048.7	8 00	877 040	10 632
9	4	9	1 198.22	.43	9	71 892.2	9 00	986 644	13 457
10 40	30.724	40	1 228.94	1843.43	40	73 735.6	10 00	1 096 239	16 614
1	4	1	1 259.66	.43	1	75 579.0	11 00	1 205 824	20 102
2	4	2	1 290.39	.43	2	77 422.4	12 00	1 315 398	23 922
3	4	3	1 321.11	.43	3	79 265.9	13 00	1 424 960	28 075
4	4	4	1 351.83	.44	4	81 109.3	14 00	1 534 509	32 560
10 45	30.724	45	1 382.56	1843.44	45	82 952.7	15 00	1 644 044	37 375
6	4	6	1 413.28	.44	6	84 796.2	16 00	1 753 564	42 522
7	4	7	1 444.00	.44	7	86 639.6	17 00	1 863 067	48 002
8	4	8	1 474.73	.44	8	88 483.1	18 00	1 972 554	53 815
9	4	9	1 505.45	.45	9	90 326.5	19 00	2 082 022	59 962
10 50	30.724	50	1 536.17	1843.45	50	92 170.0	20 00	2 191 471	66 440
1	4	1	1 566.90	.45	1	94 013.4	21 00	2 300 900	73 246
2	4	2	1 597.62	.45	2	95 856.9	22 00	2 410 308	80 385
3	4	3	1 628.34	.45	3	97 700.3	23 00	2 519 694	87 855
4	4	4	1 659.07	.46	4	99 543.8	24 00	2 629 057	95 658
10 55	30.724	55	1 689.79	1843.46	55	101 387.2	25 00	2 738 395	103 792
6	4	6	1 720.51	.46	6	103 230.7	26 00	2 847 709	112 256
7	4	7	1 751.24	.46	7	105 074.1	27 00	2 956 996	121 053
8	4	8	1 781.96	.46	8	106 917.6	28 00	3 066 256	130 180
9	4	9	1 812.69	.47	9	108 761.1	29 00	3 175 488	139 639
10 60	30.724	60	1 843.41	1843.47	60	110 604.5	30 00	3 284 690	149 428

Latitude 11° to 12°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
11 00	30.358	60.72	91.07	121.43	151.79	182.15	212.51	242.86	273.22	1821.5	3643.0	5464.4	7285.9	9107.4
1	.356	.72	.07	.42	.78	.14	.50	.85	.21	1.4	2.8	4.1	5.5	6.9
2	.355	.71	.06	.42	.77	.13	.49	.83	.19	1.3	2.6	3.8	5.1	6.4
3	.353	.71	.06	.41	.76	.12	.47	.82	.18	1.2	2.3	3.5	4.7	5.8
4	.351	.70	.05	.40	.75	.11	.46	.81	.16	1.1	2.1	3.2	4.3	5.3
11 05	30.349	60.70	91.05	121.39	151.74	182.10	212.45	242.79	273.15	1821.0	3641.9	5462.9	7283.9	9104.8
5	.348	.70	.04	.39	.74	.09	.44	.78	.13	0.9	1.7	2.6	3.5	4.3
6	.346	.69	.04	.38	.73	.08	.43	.77	.12	0.8	1.5	2.3	3.1	3.8
7	.344	.69	.03	.37	.72	.07	.41	.76	.10	0.7	1.3	2.0	2.6	3.3
8	.343	.68	.03	.37	.71	.06	.40	.74	.09	0.6	1.1	1.7	2.2	2.8
11 10	30.341	60.68	91.02	121.36	151.70	182.05	212.39	242.73	273.07	1820.5	3640.9	5461.4	7281.8	9102.3
11	.339	.68	.02	.35	.69	.04	.38	.72	.05	0.4	0.7	1.1	1.4	1.8
12	.337	.67	.01	.35	.68	.03	.36	.70	.04	0.3	0.5	0.8	1.0	1.2
13	.336	.67	.01	.34	.68	.01	.35	.69	.02	0.1	0.3	0.4	0.5	0.7
14	.334	.67	.00	.33	.67	2.00	.34	.67	3.01	20.0	40.1	60.1	80.1	100.1
11 15	30.332	60.66	91.00	121.32	151.66	181.99	212.32	242.66	272.99	1819.9	3639.9	5459.8	7279.7	9099.6
15	.330	.66	0.99	.32	.65	.98	.31	.65	.97	9.8	9.7	9.5	9.3	9.1
16	.329	.66	.99	.31	.64	.97	.30	.63	.96	9.7	9.5	9.2	8.9	8.6
17	.327	.66	.98	.30	.64	.96	.29	.62	.94	9.6	9.2	8.8	8.4	8.0
18	.325	.65	.98	.30	.63	.95	.27	.60	.93	9.5	9.0	8.5	8.0	7.5
11 20	30.323	60.65	90.97	121.29	151.62	181.94	212.26	242.59	272.91	1819.4	3638.8	5458.2	7277.6	9097.0
20	.322	.65	.97	.28	.61	.93	.25	.58	.89	9.3	8.6	7.9	7.2	6.5
21	.320	.64	.96	.28	.60	.92	.24	.56	.88	9.2	8.4	7.6	6.8	6.0
22	.318	.64	.95	.27	.59	.91	.22	.55	.86	9.1	8.1	7.2	6.3	5.4
23	.316	.63	.95	.26	.58	.90	.21	.53	.85	9.0	7.9	6.9	5.9	4.9
11 25	30.315	60.63	90.94	121.25	151.57	181.89	212.20	242.52	272.83	1818.9	3637.7	5456.6	7275.5	9094.4
25	.313	.63	.94	.25	.57	.88	.19	.51	.81	8.8	7.5	6.3	5.1	3.9
26	.311	.62	.93	.24	.56	.87	.18	.49	.80	8.7	7.3	6.0	4.7	3.3
27	.309	.62	.93	.23	.55	.85	.16	.48	.78	8.5	7.1	5.6	4.2	2.8
28	.307	.61	.92	.23	.54	.84	.15	.46	.77	8.4	6.9	5.3	3.8	2.2
11 30	30.306	60.61	90.92	121.22	151.53	181.83	212.14	242.45	272.75	1818.3	3636.7	5455.0	7273.4	9091.7
30	.304	.61	.91	.21	.52	.82	.13	.44	.73	8.2	6.5	4.7	3.0	1.2
31	.302	.60	.91	.21	.51	.81	.11	.42	.72	8.1	6.3	4.4	2.5	0.6
32	.300	.60	.90	.20	.50	.80	.10	.41	.70	8.0	6.0	4.0	2.1	90.1
33	.298	.60	.90	.19	.49	.79	.09	.39	.69	7.9	5.8	3.7	1.6	89.5
11 35	30.297	60.59	90.89	121.18	151.48	181.78	212.07	242.38	272.67	1817.8	3635.6	5453.4	7271.2	9089.0
35	.295	.59	.88	.18	.48	.77	.06	.36	.65	7.7	5.4	3.1	0.8	8.5
36	.293	.59	.88	.17	.47	.76	.05	.35	.64	7.6	5.2	2.8	70.4	7.9
37	.291	.59	.87	.16	.46	.75	.04	.33	.62	7.5	4.9	2.4	69.9	7.4
38	.289	.58	.87	.16	.45	.74	.02	.32	.61	7.4	4.7	2.1	9.5	6.8
11 40	30.288	60.58	90.86	121.15	151.44	181.73	212.01	242.30	272.59	1817.3	3634.5	5451.8	7269.1	9086.3
40	.286	.58	.86	.14	.43	.72	2.00	.29	.57	7.2	4.3	1.5	8.7	5.8
41	.284	.57	.85	.14	.42	.71	1.99	.27	.56	7.1	4.1	1.2	8.2	5.2
42	.282	.57	.85	.13	.41	.69	.97	.26	.54	6.9	3.8	0.8	7.8	4.7
43	.280	.56	.84	.12	.40	.68	.96	.24	.53	6.8	3.6	0.5	7.3	4.1
11 45	30.279	60.56	90.84	121.11	151.39	181.67	211.95	242.23	272.51	1816.7	3633.4	5450.2	7266.9	9083.6
45	.277	.56	.83	.11	.39	.66	.94	.22	.49	6.6	3.2	49.9	6.5	3.1
46	.275	.55	.83	.10	.38	.65	.93	.20	.48	6.5	3.0	9.5	6.0	2.5
47	.273	.55	.82	.09	.37	.64	.91	.19	.46	6.4	2.8	9.2	5.6	2.0
48	.271	.54	.81	.09	.36	.63	.90	.17	.45	6.3	2.6	8.8	5.1	1.4
11 50	30.270	60.54	90.81	121.08	151.35	181.62	211.89	242.16	272.43	1816.2	3632.4	5448.5	7264.7	9080.9
50	.268	.54	.80	.07	.34	.61	.88	.15	.41	6.1	2.2	8.2	4.3	80.3
51	.266	.53	.80	.06	.33	.60	.86	.13	.40	6.0	1.9	7.9	3.8	79.8
52	.264	.53	.79	.06	.32	.58	.85	.12	.38	5.8	1.7	7.5	3.4	9.2
53	.262	.52	.79	.05	.31	.57	.84	.10	.36	5.7	1.4	7.2	2.9	8.7
11 55	30.260	60.52	90.78	121.04	151.30	181.56	211.82	242.09	272.34	1815.6	3631.2	5446.9	7262.5	9078.1
55	.258	.52	.77	.03	.30	.55	.81	.07	.33	5.5	1.0	6.6	2.1	7.5
56	.257	.51	.77	.02	.29	.54	.80	.06	.31	5.4	0.8	6.2	1.6	7.0
57	.255	.51	.76	.02	.28	.53	.79	.04	.29	5.3	0.5	5.9	1.2	6.4
58	.253	.50	.76	.01	.27	.52	.77	.03	.28	5.2	0.3	5.5	0.7	5.9
11 60	30.251	60.50	90.75	121.00	151.26	181.51	211.76	242.01	272.26	1815.1	3630.1	5445.2	7260.3	9075.3

Lat.	Latitude 11° to 12°—Meridional arcs.						Latitude 11°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 11° 30'		Value of 1'	Continuous sums of minutes from latitude 11° 00'		Longitude.	X	Y
°	Meters.	"	Meters.	Meters.	'	Meters.	°	Meters.	Meters.
11 00	30.724			1843.47			0 1	1 821.5	0.1
1	4	1	30.73	.47	1	1 843.5	0 2	3 643.0	0.2
2	5	2	61.45	.47	2	3 686.9	0 3	5 464.4	0.5
3	5	3	92.18	.47	3	5 530.4	0 4	7 285.9	0.8
4	5	4	122.90	.48	4	7 373.9	0 5	9 107.4	1.3
11 05	30.725	5	153.63	1843.48	5	9 217.4	0 6	10 928.9	1.8
6	5	6	184.35	.48	6	11 060.8	0 7	12 750.4	2.5
7	5	7	215.08	.48	7	12 904.3	0 8	14 571.8	3.2
8	5	8	245.80	.49	8	14 747.8	0 9	16 393.3	4.1
9	5	9	276.53	.49	9	16 591.3			
11 10	30.725	10	307.26	1843.49	10	18 434.8	0 10	18 214.8	5.1
11	5	1	337.98	.49	1	20 278.3	0 15	27 322.2	11.4
12	5	2	368.71	.49	2	22 121.8	0 20	36 429.6	20.2
13	5	3	399.43	.50	3	23 965.3	0 25	45 537.0	31.6
14	5	4	430.16	.50	4	25 808.8	0 30	54 644.4	45.5
11 15	30.725	15	460.88	1843.50	15	27 652.3	0 35	63 751.8	61.9
16	5	6	491.61	.50	6	29 495.8	0 40	72 859.2	80.9
17	5	7	522.33	.50	7	31 339.3	0 45	81 966.5	102.4
18	5	8	553.06	.51	8	33 182.8	0 50	91 073.9	126.4
19	5	9	583.78	.51	9	35 026.3	0 55	100 181.3	152.9
11 20	30.725	20	614.51	1843.51	20	36 869.8	1 00	109 288.7	182.0
21	5	1	645.24	.51	1	38 713.3	1 05	118 396.0	213.6
22	5	2	675.96	.51	2	40 556.8	1 10	127 503.4	247.7
23	5	3	706.69	.52	3	42 400.3	1 15	136 610.7	284.3
24	5	4	737.41	.52	4	44 243.8	1 20	145 718.0	323.5
11 25	30.725	25	768.14	1843.52	25	46 087.3	1 25	154 825.3	365.2
26	5	6	798.86	.52	6	47 930.9	1 30	163 932.7	409.4
27	5	7	829.59	.52	7	49 774.4	1 35	173 039.9	456.2
28	5	8	860.31	.53	8	51 617.9	1 40	182 147.2	505.5
29	5	9	891.04	.53	9	53 461.4	1 45	191 254.5	557.3
11 30	30.726	30	921.77	1843.53	30	55 305.0	1 50	200 361.7	611.6
31	6	1	952.49	.53	1	57 148.5	1 55	209 469.0	668.5
32	6	2	983.22	.54	2	58 992.0	2 00	218 576	728
33	6	3	1 013.94	.54	3	60 835.6	2 05	327 861	1 638
34	6	4	1 044.67	.54	4	62 679.1	2 10	437 143	2 911
11 35	30.726	35	1 075.39	1843.54	35	64 522.7	2 15	546 419	4 549
36	6	6	1 106.12	.54	6	66 366.2	2 20	655 690	6 551
37	6	7	1 136.84	.55	7	68 209.8	2 25	764 953	8 916
38	6	8	1 167.57	.55	8	70 053.3	2 30	874 208	11 646
39	6	9	1 198.30	.55	9	71 896.9	2 35	983 453	14 739
11 40	30.726	40	1 229.02	1843.55	40	73 740.4	2 40	1 092 687	18 196
41	6	1	1 259.75	.55	1	75 584.0	2 45	1 201 909	22 016
42	6	2	1 290.47	.56	2	77 427.5	2 50	1 311 117	26 201
43	6	3	1 321.20	.56	3	79 271.1	2 55	1 420 311	30 749
44	6	4	1 351.92	.56	4	81 114.6	3 00	1 529 490	35 663
11 45	30.726	45	1 382.65	1843.56	45	82 958.2	3 05	1 638 652	40 937
46	6	6	1 413.37	.57	6	84 801.8	3 10	1 747 795	46 577
47	6	7	1 444.10	.57	7	86 645.3	3 15	1 856 919	52 579
48	6	8	1 474.82	.57	8	88 488.9	3 20	1 966 022	58 944
49	6	9	1 505.55	.57	9	90 332.5	3 25	2 075 104	65 674
11 50	30.726	50	1 536.28	1843.57	50	92 176.1	3 30	2 184 162	72 764
51	6	1	1 567.00	.58	1	94 019.6	3 35	2 293 196	80 221
52	6	2	1 597.73	.58	2	95 863.2	3 40	2 402 205	88 039
53	6	3	1 628.45	.58	3	97 706.8	3 45	2 511 187	96 221
54	6	4	1 659.18	.58	4	99 550.4	3 50	2 620 142	104 765
11 55	30.726	55	1 689.90	1843.58	55	101 394.0	3 55	2 729 067	113 671
56	6	6	1 720.63	.59	6	103 237.6	4 00	2 837 962	122 940
57	6	7	1 751.35	.59	7	105 081.1	4 05	2 946 825	132 573
58	7	8	1 782.08	.59	8	106 924.7	4 10	3 055 656	142 569
59	7	9	1 812.81	.59	9	108 768.3	4 15	3 164 453	152 926
11 60	30.727	60	1 843.53	1843.60	60	110 611.9	4 20	3 273 215	163 645

Latitude 12° to 13°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
12 00	30.251	60.50	90.75	121.00	151.26	181.51	211.76	242.01	272.26	1815.1	3630.1	5445.2	7260.3	9075.3
1	.249	.50	.75	120.99	.25	.50	.75	2.00	.24	5.0	29.9	4.9	59.8	4.7
2	.247	.49	.74	.99	.24	.49	.73	1.98	.23	4.9	9.7	4.5	9.4	4.2
3	.245	.49	.74	.98	.23	.47	.72	.97	.21	4.7	9.4	4.2	8.9	3.6
4	.244	.48	.73	.97	.22	.46	.71	.95	.19	4.6	9.2	3.8	8.5	3.1
12 05	30.242	60.48	90.73	120.96	151.21	181.45	211.69	241.93	272.17	1814.5	3629.0	5443.5	7258.0	9072.5
5	.240	.48	.72	.96	.20	.44	.68	.92	.16	4.4	8.8	3.2	7.6	1.9
6	.238	.47	.71	.95	.19	.43	.67	.90	.14	4.3	8.6	2.8	7.1	1.4
7	.236	.47	.71	.94	.18	.41	.66	.89	.12	4.1	8.3	2.5	6.7	0.8
8	.234	.46	.70	.94	.17	.40	.64	.87	.11	4.0	8.1	2.1	6.2	70.3
12 10	30.232	60.46	90.70	120.93	151.16	181.39	211.63	241.86	272.09	1813.9	3627.9	5441.8	7255.8	9069.7
9	.230	.46	.69	.92	.15	.38	.62	.85	.07	3.8	7.7	1.5	5.3	9.1
10	.229	.45	.69	.91	.14	.37	.60	.83	.06	3.7	7.4	1.1	4.9	8.6
11	.227	.45	.68	.91	.13	.36	.59	.82	.04	3.6	7.2	0.7	4.4	8.0
12	.225	.45	.68	.90	.12	.35	.57	.80	.02	3.5	6.9	0.3	4.0	7.5
12 15	30.223	60.44	90.67	120.89	151.12	181.34	211.56	241.78	272.00	1813.4	3626.7	5440.1	7253.5	9066.9
13	.221	.44	.66	.88	.11	.33	.55	.77	1.99	3.3	6.5	39.8	3.0	6.3
14	.219	.44	.66	.87	.10	.32	.53	.75	.97	3.2	6.3	9.4	2.6	5.7
15	.217	.44	.65	.87	.09	.30	.52	.74	.95	3.0	6.0	9.1	2.1	5.2
16	.215	.43	.65	.86	.08	.29	.50	.72	.94	2.9	5.8	8.7	1.7	4.6
12 20	30.213	60.43	90.64	120.85	151.07	181.28	211.49	241.71	271.92	1812.8	3625.6	5438.4	7251.2	9064.0
17	.211	.43	.63	.84	.06	.27	.48	.69	.90	2.7	5.4	8.1	0.7	3.4
18	.209	.42	.63	.84	.05	.26	.46	.68	.89	2.6	5.2	7.4	50.3	2.8
19	.208	.42	.62	.83	.04	.24	.45	.66	.87	2.4	4.9	7.7	49.8	2.3
20	.206	.41	.62	.82	.03	.23	.44	.65	.85	2.3	4.7	7.0	9.4	1.7
12 25	30.204	60.41	90.61	120.81	151.02	181.22	211.42	241.63	271.83	1812.2	3624.5	5436.7	7248.9	9061.1
21	.202	.41	.60	.81	.01	.21	.41	.61	.82	2.1	4.3	6.4	8.4	0.5
22	.200	.40	.60	.80	1.00	.20	.40	.60	.80	2.0	4.0	6.0	8.0	60.0
23	.198	.40	.59	.79	0.99	.19	.39	.58	.78	1.9	3.8	5.7	7.5	59.4
24	.196	.39	.59	.79	.98	.18	.37	.57	.77	1.8	3.5	5.3	7.1	8.9
12 30	30.194	60.39	90.58	120.78	150.97	181.17	211.36	241.55	271.75	1811.7	3623.3	5435.0	7246.6	9058.3
25	.192	.39	.58	.77	.96	.16	.35	.54	.73	1.6	3.1	4.6	6.1	7.7
26	.190	.38	.57	.76	.95	.15	.33	.52	.71	1.5	2.8	4.3	5.7	7.1
27	.188	.38	.56	.76	.94	.13	.32	.51	.70	1.3	2.6	3.9	5.2	6.5
28	.186	.37	.56	.75	.93	.12	.30	.49	.68	1.2	2.3	3.6	4.8	5.9
12 35	30.184	60.37	90.55	120.74	150.92	181.11	211.29	241.47	271.66	1811.1	3622.1	5433.2	7244.3	9055.3
29	.182	.37	.55	.73	.91	.10	.28	.46	.64	1.0	1.9	2.9	3.8	4.7
30	.180	.36	.54	.72	.90	.09	.26	.44	.62	0.9	1.7	2.5	3.3	4.1
31	.179	.36	.54	.72	.89	.07	.25	.43	.61	0.7	1.4	2.2	2.9	3.6
32	.177	.35	.53	.71	.88	.06	.23	.41	.59	0.6	1.2	1.8	2.4	3.0
12 40	30.175	60.35	90.52	120.70	150.87	181.05	211.22	241.40	271.57	1810.5	3621.0	5431.5	7241.9	9052.4
33	.173	.35	.52	.69	.86	.04	.21	.38	.55	0.4	0.8	1.1	1.4	1.8
34	.171	.34	.51	.68	.85	.03	.19	.37	.54	0.3	0.5	0.8	1.0	1.2
35	.169	.34	.51	.68	.84	.01	.18	.35	.52	0.1	0.3	0.4	0.5	0.7
36	.167	.33	.50	.67	.83	1.00	.17	.34	.50	10.0	20.0	30.1	40.1	50.1
12 45	30.165	60.33	90.50	120.66	150.83	180.99	211.15	241.32	271.48	1809.9	3619.8	5429.7	7239.6	9049.5
37	.163	.33	.49	.65	.82	.98	.14	.30	.47	9.9	9.6	9.3	9.1	8.9
38	.161	.32	.48	.64	.81	.97	.13	.29	.45	9.7	9.3	9.0	8.6	8.3
39	.159	.32	.48	.64	.80	.95	.12	.27	.43	9.5	9.1	8.6	8.2	7.7
40	.157	.31	.47	.63	.79	.94	.10	.26	.42	9.4	8.8	8.3	7.7	7.1
12 50	30.155	60.31	90.47	120.62	150.78	180.93	211.09	241.24	271.40	1809.3	3618.6	5427.9	7237.2	9046.5
41	.153	.31	.46	.61	.77	.92	.08	.22	.38	9.2	8.4	7.5	6.7	5.9
42	.151	.30	.45	.60	.76	.91	.06	.21	.36	9.1	8.1	7.2	6.2	5.3
43	.149	.30	.45	.60	.75	.89	.05	.19	.35	8.9	7.9	6.8	5.8	4.7
44	.147	.29	.44	.59	.74	.88	.03	.18	.33	8.8	7.6	6.5	5.3	4.1
12 55	30.145	60.29	90.44	120.58	150.73	180.87	211.02	241.16	271.31	1808.7	3617.4	5426.1	7234.8	9043.5
45	.143	.29	.43	.57	.72	.86	1.01	.14	.29	8.6	7.2	5.7	4.3	2.9
46	.141	.28	.42	.56	.71	.85	0.99	.13	.27	8.5	6.9	5.4	3.8	2.3
47	.139	.28	.42	.56	.70	.83	.98	.11	.26	8.3	6.7	5.0	3.4	1.7
48	.137	.27	.41	.55	.69	.82	.96	.10	.24	8.2	6.4	4.7	2.9	1.1
12 60	30.135	60.27	90.41	120.54	150.68	180.81	210.95	241.08	271.22	1808.1	3616.2	5424.3	7232.4	9040.5

Lat.	Latitude 12° to 13°—Meridional arcs.						Latitude 12°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 12° 30'		Value of 1'	Continuous sums of minutes from latitude 12° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
12 00	30.727			1843.60					
1	7	1	30.73	.60	1	1 843.6	0 1	1 815.1	0.1
2	7	2	61.46	.60	2	3 687.2	2	3 630.1	0.2
3	7	3	92.18	.60	3	5 530.8	3	5 445.2	0.5
4	7	4	122.91	.60	4	7 374.4	4	7 260.3	0.9
12 05	30.727	5	153.64	1843.61	5	9 218.0	0 5	9 075.3	1.4
6	7	6	184.37	.61	6	11 061.6	6	10 890.4	2.0
7	7	7	215.09	.61	7	12 905.2	7	12 705.5	2.7
8	7	8	245.82	.61	8	14 748.8	8	14 520.5	3.5
9	7	9	276.55	.62	9	16 592.5	9	16 335.6	4.5
12 10	30.727	10	307.28	1843.62	10	18 436.1	0 10	18 150.7	5.5
11	7	1	338.01	.62	1	20 279.7	15	27 226.0	12.4
12	7	2	368.73	.62	2	22 123.3	20	36 301.3	22.0
13	7	3	399.46	.62	3	23 966.9	25	45 376.7	34.3
14	7	4	430.19	.63	4	25 810.6	30	54 452.0	49.4
12 15	30.727	15	460.92	1843.63	15	27 654.2	0 35	63 527.3	67.2
16	7	6	491.64	.63	6	29 497.8	40	72 602.6	87.8
17	7	7	522.37	.63	7	31 341.5	45	81 677.9	111.1
18	7	8	553.10	.64	8	33 185.1	50	90 753.2	137.2
19	7	9	583.83	.64	9	35 028.7	55	99 828.5	166.0
12 20	30.727	20	614.55	1843.64	20	36 872.4	1 00	108 903.8	197.6
21	7	1	645.28	.64	1	38 716.0	05	117 979.0	231.9
22	7	2	676.01	.65	2	40 559.7	10	127 054.3	268.9
23	7	3	706.74	.65	3	42 403.3	15	136 129.6	308.7
24	7	4	737.47	.65	4	44 247.0	20	145 204.8	351.3
12 25	30.728	25	768.19	1843.65	25	46 090.6	1 25	154 280.0	396.6
26	8	5	798.92	.65	5	47 934.3	30	163 355.2	444.6
27	8	6	829.65	.66	6	49 777.9	35	172 430.4	495.4
28	8	7	860.38	.66	7	51 621.6	40	181 505.6	548.9
29	8	8	891.10	.66	8	53 465.3	45	190 580.7	605.1
12 30	30.728	30	921.83	1843.66	30	55 308.9	1 50	199 655.9	664.1
31	8	1	952.56	.67	1	57 152.6	55	208 731.0	725.9
32	8	2	983.29	.67	2	58 996.3	2 00	217 806	790
33	8	3	1 014.02	.67	3	60 839.9	3 00	326 706	1 778
34	8	4	1 044.74	.67	4	62 683.6	4 00	435 601	3 161
12 35	30.728	35	1 075.47	1843.67	35	64 527.2	5 00	544 490	4 940
36	8	5	1 106.20	.68	5	66 370.9	6 00	653 372	7 113
37	8	6	1 136.93	.68	6	68 214.6	7 00	762 246	9 682
38	8	7	1 167.65	.68	7	70 058.3	8 00	871 110	12 646
39	8	8	1 198.38	.68	8	71 902.0	9 00	979 962	16 004
12 40	30.728	40	1 229.11	1843.69	40	73 745.6	10 00	1 088 801	19 757
41	8	1	1 259.84	.69	1	75 589.3	11 00	1 197 626	23 905
42	8	2	1 290.56	.69	2	77 433.0	12 00	1 306 435	28 449
43	8	3	1 321.29	.69	3	79 276.7	13 00	1 415 227	33 387
44	8	4	1 352.02	.70	4	81 120.4	14 00	1 524 000	38 719
12 45	30.728	45	1 382.75	1843.70	45	82 964.1	15 00	1 632 753	44 447
46	8	5	1 413.48	.70	5	84 807.8	16 00	1 741 485	50 569
47	8	6	1 444.20	.70	6	86 651.5	17 00	1 850 194	57 085
48	8	7	1 474.93	.70	7	88 495.2	18 00	1 958 879	63 997
49	8	8	1 505.66	.71	8	90 338.9	19 00	2 067 537	71 303
12 50	30.728	50	1 536.39	1843.71	50	92 182.6	20 00	2 176 168	79 003
51	9	1	1 567.11	.71	1	94 026.3	21 00	2 284 771	87 006
52	9	2	1 597.84	.71	2	95 870.1	22 00	2 393 344	95 584
53	9	3	1 628.57	.72	3	97 713.8	23 00	2 501 885	104 466
54	9	4	1 659.30	.72	4	99 557.5	24 00	2 610 394	113 741
12 55	30.729	55	1 690.03	1843.72	55	101 401.2	25 00	2 718 867	123 410
56	9	5	1 720.75	.72	5	103 244.9	26 00	2 827 305	133 473
57	9	6	1 751.48	.73	6	105 088.7	27 00	2 935 706	143 930
58	9	7	1 782.21	.73	7	106 932.4	28 00	3 044 068	154 780
59	9	8	1 812.94	.73	8	108 776.1	29 00	3 152 390	166 023
12 60	30.729	60	1 843.66	1843.73	60	110 619.8	30 00	3 260 671	177 658

Latitude 13° to 14°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
13 00	30.135	60.27	90.41	120.54	150.68	180.81	210.95	241.08	271.22	1808.1	3616.2	5424.3	7232.4	9040.5
1	.133	.27	.40	.53	.67	.80	.94	.06	.20	8.0	6.0	3.9	1.9	39.9
2	.131	.26	.39	.52	.66	.79	.92	.05	.18	7.9	5.7	3.6	1.4	9.3
3	.129	.26	.39	.52	.65	.77	.91	.03	.16	7.7	5.5	3.2	1.0	8.7
4	.127	.25	.38	.51	.64	.76	.89	.02	.14	7.6	5.2	2.9	0.5	8.1
13 05	30.125	60.25	90.37	120.50	150.62	180.75	210.88	241.00	271.12	1807.5	3615.0	5422.5	7230.0	9037.5
6	.123	.25	.37	.49	.61	.74	.86	0.98	.11	7.4	4.8	2.1	29.5	6.9
7	.121	.24	.36	.48	.60	.73	.85	.97	.09	7.3	4.5	1.8	9.0	6.3
8	.119	.24	.36	.48	.59	.71	.83	.95	.07	7.1	4.3	1.4	8.6	5.6
9	.117	.23	.35	.47	.58	.70	.82	.94	.05	7.0	4.0	1.1	8.1	5.0
13 10	30.115	60.23	90.34	120.46	150.57	180.69	210.80	240.92	271.03	1806.9	3613.8	5420.7	7227.6	9034.4
11	.113	.23	.34	.45	.56	.68	.79	.90	1.01	6.8	3.5	20.3	7.1	3.8
12	.111	.22	.33	.44	.55	.67	.77	.89	0.99	6.7	3.3	19.9	6.6	3.2
13	.109	.22	.33	.44	.54	.65	.76	.87	.98	6.5	3.0	9.6	6.1	2.6
14	.107	.21	.32	.43	.53	.64	.74	.85	.96	6.4	2.8	9.2	5.6	2.0
13 15	30.105	60.21	90.31	120.42	150.52	180.63	210.73	240.84	270.94	1806.3	3612.5	5418.8	7225.1	9031.4
16	.103	.21	.31	.41	.51	.62	.72	.82	.92	6.2	2.3	8.4	4.6	0.8
17	.101	.20	.30	.40	.50	.61	.70	.80	.90	6.1	2.0	8.1	4.1	30.2
18	.098	.20	.29	.39	.49	.59	.69	.78	.89	5.9	1.8	7.7	3.6	29.5
19	.096	.19	.29	.38	.48	.58	.67	.77	.87	5.8	1.5	7.4	3.1	8.9
13 20	30.094	60.19	90.28	120.38	150.47	180.57	210.66	240.75	270.85	1805.7	3611.3	5417.0	7222.6	9028.3
21	.092	.19	.28	.37	.46	.56	.65	.73	.83	5.6	1.1	6.6	2.1	7.7
22	.090	.18	.27	.36	.45	.54	.63	.72	.81	5.4	0.8	6.2	1.6	7.1
23	.088	.18	.26	.35	.44	.53	.62	.70	.79	5.3	0.6	5.9	1.1	6.4
24	.086	.17	.26	.34	.43	.51	.60	.69	.77	5.1	0.3	5.5	0.6	5.8
13 25	30.084	60.17	90.25	120.33	150.42	180.50	210.59	240.67	270.76	1805.0	3610.1	5415.1	7220.1	9025.2
26	.082	.17	.25	.33	.41	.49	.58	.65	.74	4.9	09.8	4.7	19.6	4.6
27	.080	.16	.24	.32	.40	.48	.56	.64	.72	4.8	9.6	4.3	9.1	4.0
28	.078	.16	.23	.31	.39	.46	.55	.62	.70	4.6	9.3	4.0	8.7	3.3
29	.076	.15	.23	.30	.38	.45	.53	.61	.68	4.5	9.1	3.6	8.2	2.7
13 30	30.074	60.15	90.22	120.29	150.37	180.44	210.52	240.59	270.66	1804.4	3608.8	5413.2	7217.7	9022.1
31	.072	.15	.21	.28	.36	.43	.51	.57	.64	4.3	8.6	2.8	7.2	1.5
32	.069	.14	.21	.27	.35	.42	.49	.56	.62	4.2	8.3	2.5	6.7	0.8
33	.067	.14	.20	.27	.34	.40	.48	.54	.60	4.0	8.1	2.1	6.1	20.2
34	.065	.13	.20	.26	.33	.39	.46	.52	.58	3.9	7.8	1.8	5.6	19.5
13 35	30.063	60.13	90.19	120.25	150.31	180.38	210.45	240.51	270.57	1803.8	3607.6	5411.4	7215.1	9018.9
36	.061	.13	.19	.24	.30	.37	.43	.49	.55	3.7	7.3	1.0	4.6	8.3
37	.059	.12	.18	.23	.29	.36	.42	.47	.53	3.6	7.1	0.6	4.1	7.7
38	.057	.12	.17	.23	.28	.34	.40	.45	.51	3.4	6.8	10.3	3.6	7.0
39	.055	.11	.16	.22	.27	.33	.39	.44	.49	3.3	6.6	09.9	3.1	6.4
13 40	30.053	60.11	90.16	120.21	150.26	180.32	210.37	240.42	270.47	1803.2	3606.3	5409.5	7212.6	9015.8
41	.051	.11	.15	.20	.25	.31	.36	.40	.45	3.1	6.0	9.1	2.1	5.2
42	.048	.10	.15	.19	.24	.29	.34	.39	.43	2.9	5.8	8.7	1.6	4.5
43	.046	.10	.14	.18	.23	.28	.33	.37	.41	2.8	5.5	8.4	1.1	3.9
44	.044	.09	.13	.17	.22	.26	.31	.35	.39	2.6	5.3	8.0	0.6	3.2
13 45	30.042	60.09	90.13	120.16	150.21	180.25	210.30	240.33	270.38	1802.5	3605.0	5407.6	7210.1	9012.6
46	.040	.08	.12	.16	.20	.24	.28	.32	.36	2.4	4.8	7.2	09.6	2.0
47	.038	.08	.11	.15	.19	.23	.27	.30	.34	2.3	4.5	6.8	9.1	1.3
48	.036	.07	.11	.14	.18	.21	.25	.28	.32	2.1	4.3	6.4	8.6	0.7
49	.033	.07	.10	.13	.17	.20	.24	.27	.30	2.0	4.0	6.0	8.1	10.0
13 50	30.031	60.06	90.09	120.12	150.16	180.19	210.22	240.25	270.28	1801.9	3603.8	5405.6	7207.5	9009.4
51	.029	.06	.09	.11	.15	.18	.21	.23	.26	1.8	3.5	5.2	7.0	8.8
52	.027	.05	.08	.10	.14	.16	.19	.22	.24	1.6	3.3	4.8	6.5	8.1
53	.025	.05	.07	.10	.13	.15	.18	.20	.22	1.5	3.0	4.5	5.9	7.5
54	.023	.04	.07	.09	.12	.13	.16	.18	.20	1.3	2.8	4.1	5.4	6.8
13 55	30.021	60.04	90.06	120.08	150.10	180.12	210.15	240.16	270.19	1801.2	3602.5	5403.7	7204.9	9006.2
56	.019	.04	.06	.07	.09	.11	.13	.15	.17	1.1	2.2	3.3	4.4	5.6
57	.016	.03	.05	.06	.08	.10	.12	.13	.15	1.0	2.0	2.9	3.9	4.9
58	.014	.03	.04	.06	.07	.08	.10	.11	.13	0.8	1.7	2.6	3.4	4.3
59	.012	.02	.04	.05	.06	.07	.09	.10	.11	0.7	1.5	2.2	2.9	3.6
13 60	30.010	60.02	90.03	120.04	150.05	180.06	210.07	240.08	270.09	1800.6	3601.2	5401.8	7202.4	9003.0

Lat.	Latitude 13° to 14°—Meridional arcs.						Latitude 13°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 13° 30'		Value of 1'	Continuous sums of minutes from latitude 13° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
13 00	30.729			1843.73			0 1	1 808.1	0.1
1	9	1	30.73	.73	1	1 843.7	0 2	3 616.2	0.2
2	9	2	61.46	.74	2	3 687.5	3	5 424.3	0.5
3	9	3	92.19	.74	3	5 531.2	4	7 232.4	0.9
4	9	4	122.92	.74	4	7 375.0	5	9 040.5	1.5
13 05	30.729	5	153.65	1843.74	5	9 218.7	6	10 848.6	2.1
6	9	6	184.38	.75	6	11 062.4	7	12 656.7	2.9
7	9	7	215.11	.75	7	12 906.2	8	14 464.8	3.8
8	9	8	245.84	.75	8	14 750.0	9	16 272.9	4.8
9	9	9	276.57	.75	9	16 593.7	10	18 081.0	5.9
13 10	30.729	10	307.30	1843.76	10	18 437.5	15	27 121.5	13.3
11	9	1	338.03	.76	1	20 281.2	20	36 162.0	23.7
12	9	2	368.76	.76	2	22 125.0	25	45 202.5	37.0
13	9	3	399.49	.76	3	23 968.8	30	54 243.0	53.2
14	9	4	430.22	.77	4	25 812.5	35	63 283.5	72.5
13 15	30.729	15	460.95	1843.77	15	27 656.3	40	72 324.0	94.7
16	30	6	491.68	.77	6	29 500.1	45	81 364.5	119.9
17	0	7	522.41	.77	7	31 343.8	50	90 405.0	148.0
18	0	8	553.14	.78	8	33 187.6	55	99 445.4	179.1
19	0	9	583.87	.78	9	35 031.4	1 00	108 485.9	213.0
13 20	30.730	20	614.60	1843.78	20	36 875.2	05	117 526.3	249.9
21	0	1	645.33	.78	1	38 719.0	10	126 566.7	289.8
22	0	2	676.06	.79	2	40 562.7	15	135 607.1	332.7
23	0	3	706.79	.79	3	42 406.5	20	144 647.5	378.6
24	0	4	737.52	.79	4	44 250.3	25	153 687.9	427.4
13 25	30.730	25	768.25	1843.79	25	46 094.1	30	162 728.3	479.1
26	0	6	798.98	.80	6	47 937.9	35	171 768.6	533.8
27	0	7	829.71	.80	7	49 781.7	40	180 809.0	591.6
28	0	8	860.44	.80	8	51 625.5	45	189 849.2	652.1
29	0	9	891.17	.80	9	53 469.3	50	198 889.5	715.7
13 30	30.730	30	921.90	1843.81	30	55 313.1	55	207 929.6	782.3
31	0	1	952.63	.81	1	57 156.9	00	216 970	852
32	0	2	983.36	.81	2	59 000.8	05	325 451	1 917
33	0	3	1 014.09	.81	3	60 844.6	10	433 927	3 407
34	0	4	1 044.82	.82	4	62 688.4	15	542 396	5 324
13 35	30.730	35	1 075.55	1843.82	35	64 532.2	20	650 857	7 666
36	0	5	1 106.28	.82	5	66 376.0	25	759 307	10 434
37	0	6	1 137.01	.82	6	68 219.8	30	867 746	13 628
38	0	7	1 167.74	.83	7	70 063.6	35	976 172	17 248
39	0	8	1 198.47	.83	8	71 907.5	40		
13 40	30.731	40	1 229.21	1843.83	40	73 751.3	45	1 084 583	21 294
41	1	1	1 259.94	.83	1	75 595.1	50	1 192 977	25 765
42	1	2	1 290.67	.84	2	77 439.0	55	1 301 352	30 661
43	1	3	1 321.40	.84	3	79 282.8	00	1 409 708	35 983
44	1	4	1 352.13	.84	4	81 126.7	05	1 518 042	41 730
13 45	30.731	45	1 382.86	1843.84	45	82 970.5	10	1 626 352	47 903
46	1	5	1 413.59	.85	5	84 814.3	15	1 734 637	54 501
47	1	6	1 444.32	.85	6	86 658.2	20	1 842 896	61 524
48	1	7	1 475.05	.85	7	88 502.0	25	1 951 126	68 972
49	1	8	1 505.78	.85	8	90 345.9	30	2 059 326	76 845
13 50	30.731	50	1 536.51	1843.86	50	92 189.8	35	2 167 494	85 143
51	1	1	1 567.24	.86	1	94 033.6	40	2 275 629	93 865
52	1	2	1 597.97	.86	2	95 877.5	45	2 383 729	103 012
53	1	3	1 628.70	.86	3	97 721.3	50	2 491 792	112 583
54	1	4	1 659.43	.87	4	99 565.2	55	2 599 817	122 578
13 55	30.731	55	1 690.16	1843.87	55	101 409.1	00	2 707 801	132 997
56	1	5	1 720.89	.87	5	103 252.9	05	2 815 744	143 840
57	1	6	1 751.62	.87	6	105 096.8	10	2 923 644	155 107
58	1	7	1 782.35	.88	7	106 940.7	15	3 031 498	166 798
59	1	8	1 813.08	.88	8	108 784.6	20	3 139 305	178 912
13 60	30.731	60	1 843.81	1843.88	60	110 628.4	25	3 247 065	191 448

Latitude 14° to 15°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
14 00	30.010	60.02	90.03	120.04	150.05	180.06	210.07	240.08	270.09	1800.6	3601.2	5401.8	7202.4	9003.0
1	.008	.02	.02	.03	.04	.05	.06	.06	.07	0.5	0.9	1.4	1.9	2.3
2	.005	.01	.02	.02	.03	.03	.04	.04	.05	0.3	0.7	1.0	1.3	1.6
3	.003	.01	.01	.01	.02	.02	.03	.03	.03	0.2	0.4	0.6	0.8	1.0
4	.001	.00	90.00	20.00	50.01	80.01	.01	40.01	70.01	800.1	600.2	400.2	200.2	9000.4
14 05	29.999	60.00	90.00	119.99	149.99	179.99	210.00	239.99	269.99	1799.9	3599.9	5399.8	7199.7	8999.7
5	.997	60.00	89.99	.99	.98	.98	09.98	.97	.97	9.8	9.6	9.4	9.2	9.0
6	.995	59.99	.98	.98	.97	.97	.97	.95	.95	9.7	9.4	9.0	8.7	8.4
7	.992	.99	.98	.97	.96	.95	.95	.94	.93	9.5	9.1	8.7	8.1	7.7
8	.990	.98	.97	.96	.95	.94	.94	.92	.91	9.4	8.9	8.3	7.6	7.1
14 10	29.988	59.98	89.96	119.95	149.94	179.93	209.92	239.90	269.89	1799.3	3598.6	5397.9	7197.1	8996.4
11	.986	.98	.96	.94	.93	.92	.90	.88	.87	9.2	8.3	7.5	6.6	5.7
12	.984	.97	.95	.93	.92	.90	.89	.87	.85	9.0	8.0	7.1	6.1	5.1
13	.981	.97	.94	.92	.91	.89	.87	.85	.83	8.9	7.8	6.7	5.5	4.4
14	.979	.96	.94	.91	.90	.88	.86	.83	.81	8.8	7.5	6.3	5.0	3.8
14 15	29.977	59.96	89.93	119.90	149.88	179.86	209.84	239.81	269.79	1798.6	3597.2	5395.9	7194.5	8993.1
16	.975	.95	.92	.90	.87	.85	.82	.80	.77	8.5	6.9	5.5	4.0	2.4
17	.973	.95	.92	.89	.86	.84	.81	.78	.75	8.4	6.7	5.1	3.5	1.8
18	.970	.94	.91	.88	.85	.82	.79	.76	.73	8.2	6.4	4.7	2.9	1.1
19	.968	.94	.91	.87	.84	.81	.78	.75	.71	8.1	6.2	4.3	2.4	90.5
14 20	29.966	59.93	89.90	119.86	149.83	179.80	209.76	239.73	269.69	1798.0	3595.9	5393.9	7191.9	8989.8
21	.964	.93	.89	.85	.82	.79	.75	.71	.67	7.9	5.6	3.5	1.4	9.1
22	.962	.92	.89	.84	.81	.77	.73	.69	.65	7.7	5.4	3.1	0.8	8.5
23	.959	.92	.88	.84	.80	.76	.72	.68	.63	7.6	5.1	2.7	90.3	7.8
24	.957	.91	.87	.83	.79	.74	.70	.66	.61	7.4	4.9	2.3	89.7	7.2
14 25	29.955	59.91	89.86	119.82	149.77	179.73	209.69	239.64	269.59	1797.3	3594.6	5391.9	7189.2	8986.5
26	.953	.91	.86	.81	.76	.72	.67	.62	.57	7.2	4.3	1.5	8.7	5.8
27	.950	.90	.85	.80	.75	.70	.66	.60	.55	7.0	4.1	1.1	8.1	5.1
28	.948	.90	.84	.80	.74	.69	.64	.59	.53	6.9	3.8	0.7	7.6	4.5
29	.946	.89	.84	.79	.73	.67	.63	.57	.51	6.7	3.6	90.3	7.0	3.8
14 30	29.944	59.89	89.83	119.78	149.72	179.66	209.61	239.55	269.49	1796.6	3593.3	5389.9	7186.5	8983.1
31	.941	.89	.82	.77	.71	.65	.59	.53	.47	6.5	3.0	9.5	6.0	2.4
32	.939	.88	.82	.76	.70	.64	.58	.51	.45	6.4	2.7	9.1	5.4	1.8
33	.937	.88	.81	.75	.69	.62	.56	.50	.43	6.2	2.5	8.7	4.9	1.1
34	.935	.87	.80	.74	.68	.61	.55	.48	.41	6.1	2.2	8.3	4.3	80.5
14 35	29.933	59.87	89.80	119.73	149.66	179.60	209.53	239.46	269.39	1796.0	3591.9	5387.9	7183.8	8979.8
36	.930	.86	.79	.73	.65	.58	.51	.44	.37	5.8	1.6	7.5	3.3	9.1
37	.928	.86	.78	.72	.64	.57	.50	.42	.35	5.7	1.4	7.1	2.7	8.4
38	.926	.85	.78	.71	.63	.56	.48	.41	.33	5.6	1.1	6.6	2.2	7.8
39	.924	.85	.77	.70	.62	.54	.47	.39	.31	5.4	0.9	6.2	1.6	7.1
14 40	29.921	59.84	89.76	119.69	149.61	179.53	209.45	239.37	269.29	1795.3	3590.6	5385.8	7181.1	8976.4
41	.919	.84	.76	.68	.60	.52	.43	.35	.27	5.2	0.3	5.4	0.6	5.7
42	.917	.83	.75	.67	.59	.50	.42	.33	.25	5.0	90.0	5.0	80.0	5.0
43	.915	.83	.74	.66	.57	.49	.40	.32	.23	4.9	89.8	4.5	79.5	4.4
44	.912	.82	.74	.65	.56	.47	.39	.30	.21	4.7	9.5	4.1	8.9	3.7
14 45	29.910	59.82	89.73	119.64	149.55	179.46	209.37	239.28	269.19	1794.6	3589.2	5383.7	7178.4	8973.0
46	.908	.82	.72	.63	.54	.45	.35	.26	.17	4.5	8.9	3.3	7.9	2.3
47	.905	.81	.72	.62	.53	.43	.34	.24	.15	4.3	8.6	2.9	7.3	1.6
48	.903	.81	.71	.61	.51	.42	.32	.23	.13	4.2	8.4	2.5	6.8	1.0
49	.901	.80	.70	.60	.50	.40	.31	.21	.11	4.0	8.1	2.1	6.2	70.3
14 50	29.899	59.80	89.70	119.59	149.49	179.39	209.29	239.19	269.09	1793.0	3587.8	5381.7	7175.7	8969.6
51	.896	.80	.69	.58	.48	.38	.27	.17	.07	3.8	7.5	1.3	5.1	8.9
52	.894	.79	.68	.57	.47	.36	.26	.15	.05	3.6	7.2	0.9	4.6	8.2
53	.892	.79	.68	.56	.46	.35	.24	.13	.03	3.5	7.0	0.5	4.0	7.5
54	.889	.78	.67	.55	.45	.33	.23	.11	9.01	3.3	6.7	80.1	3.5	6.8
14 55	29.887	59.78	89.66	119.54	149.43	179.32	209.21	239.09	268.98	1793.2	3586.4	5379.7	7172.9	8966.1
56	.885	.77	.65	.54	.42	.31	.19	.08	.96	3.1	6.1	9.3	2.3	5.4
57	.882	.77	.65	.53	.41	.29	.18	.06	.94	2.9	5.9	8.9	1.8	4.7
58	.880	.76	.64	.52	.40	.28	.16	.04	.92	2.8	5.6	8.4	1.2	4.1
59	.878	.76	.63	.51	.39	.26	.15	.02	.90	2.6	5.4	8.0	0.7	3.4
14 60	29.876	59.75	89.63	119.50	149.38	179.25	209.13	239.00	268.88	1792.5	3585.1	5377.6	7170.1	8962.7

		Latitude 14° to 15°—Meridional arcs.					Latitude 14°—Co-ordinates of curvature.		
Lat.		Value of 1''	Sums of seconds for middle latitude 14° 30'		Value of 1'	Continuous sums of minutes from latitude 14° 00'	Longitude.	X	Y
° /	Meters.	''	Meters.		Meters.	'	Meters.	° /	Meters.
14 00	30.731				1843.88				
1	1	1	30.73		.88	1	1 843.9	0 1	1 800.6
2	1	2	61.47		.89	2	3 687.8	0 2	3 601.2
3	1	3	92.20		.89	3	5 531.7	0 3	5 401.8
4	2	4	122.93		.89	4	7 375.6	0 4	7 202.4
14 05	30.732	5	153.66		1843.89	5	9 219.4	0 5	9 002.9
6	2	6	184.40		.90	6	11 063.3	0 6	10 803.5
7	2	7	215.13		.90	7	12 907.2	0 7	12 604.1
8	2	8	245.86		.90	8	14 751.1	0 8	14 404.7
9	2	9	276.59		.91	9	16 595.0	0 9	16 205.3
14 10	30.732	10	307.33		1843.91	10	18 438.9	0 10	18 005.9
11	2	1	338.06		.91	1	20 282.9	0 15	27 008.8
12	2	2	368.79		.91	2	22 126.8	0 20	36 011.8
13	2	3	399.52		.92	3	23 970.7	0 25	45 014.7
14	2	4	430.26		.92	4	25 814.6	0 30	54 017.7
14 15	30.732	15	460.99		1843.92	15	27 658.5	0 35	63 020.6
16	2	6	491.72		.92	6	29 502.5	0 40	72 023.5
17	2	7	522.46		.93	7	31 346.4	0 45	81 026.4
18	2	8	553.19		.93	8	33 190.3	0 50	90 029.3
19	2	9	583.92		.93	9	35 034.3	0 55	99 032.2
14 20	30.732	20	614.65		1843.93	20	36 878.2	1 00	108 035.1
21	2	1	645.39		.94	1	38 722.1	1 05	117 037.9
22	2	2	676.12		.94	2	40 566.1	1 10	126 040.8
23	2	3	706.85		.94	3	42 410.0	1 15	135 043.6
24	2	4	737.58		.94	4	44 254.0	1 20	144 046.4
14 25	30.732	25	768.32		1843.95	25	46 097.9	1 25	153 049.2
26	2	6	799.05		.95	6	47 941.9	1 30	162 052.0
27	3	7	829.78		.95	7	49 785.8	1 35	171 054.8
28	3	8	860.52		.96	8	51 629.8	1 40	180 057.5
29	3	9	891.25		.96	9	53 473.7	1 45	189 060.2
14 30	30.733	30	921.98		1843.96	30	55 317.7	1 50	198 062.9
31	3	1	952.71		.96	1	57 161.6	1 55	207 065.6
32	3	2	983.45		.97	2	59 005.6	2 00	216 068
33	3	3	1 014.18		.97	3	60 849.5	2 05	225 071
34	3	4	1 044.91		.97	4	62 693.5	2 10	234 074
14 35	30.733	35	1 075.64		1843.97	35	64 537.5	2 15	243 077
36	3	6	1 106.38		.98	6	66 381.5	2 20	252 080
37	3	7	1 137.11		.98	7	68 225.4	2 25	261 083
38	3	8	1 167.84		.98	8	70 069.4	2 30	270 086
39	3	9	1 198.57		.98	9	71 913.4	2 35	279 089
14 40	30.733	40	1 229.31		1843.99	40	73 757.4	2 40	288 092
41	3	1	1 260.04		.99	1	75 601.4	2 45	297 095
42	3	2	1 290.77		.99	2	77 445.4	2 50	306 098
43	3	3	1 321.51		3.99	3	79 289.4	2 55	315 101
44	3	4	1 352.24		4.00	4	81 133.4	3 00	324 104
14 45	30.733	45	1 382.97		1844.00	45	82 977.3	3 05	333 107
46	3	6	1 413.70		.00	6	84 821.4	3 10	342 110
47	3	7	1 444.44		.00	7	86 665.4	3 15	351 113
48	3	8	1 475.17		.01	8	88 509.4	3 20	360 116
49	3	9	1 505.90		.01	9	90 353.4	3 25	369 119
14 50	30.734	50	1 536.63		1844.01	50	92 197.4	3 30	378 122
51	4	1	1 567.37		.01	1	94 041.4	3 35	387 125
52	4	2	1 598.10		.02	2	95 885.4	3 40	396 128
53	4	3	1 628.83		.02	3	97 729.4	3 45	405 131
54	4	4	1 659.57		.02	4	99 573.5	3 50	414 134
14 55	30.734	55	1 690.30		1844.02	55	101 417.5	3 55	423 137
56	4	6	1 721.03		.03	6	103 261.5	4 00	432 140
57	4	7	1 751.76		.03	7	105 105.5	4 05	441 143
58	4	8	1 782.50		.03	8	106 949.6	4 10	450 146
59	4	9	1 813.23		.04	9	108 793.6	4 15	459 149
14 60	30.734	60	1 843.96		1844.04	60	110 637.6	4 20	468 152

Latitude 15° to 16°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
15 00	29.876	59.75	89.63	119.50	149.38	179.25	209.13	239.00	268.88	1792.5	3585.1	5377.6	7170.1	8962.7
1	.873	.75	.62	.49	.37	.24	.11	8.98	.86	2.4	4.8	7.2	69.6	2.0
2	.871	.74	.61	.48	.36	.22	.10	8.96	.84	2.2	4.5	6.8	9.0	1.3
3	.869	.74	.61	.47	.34	.21	.08	8.95	.82	2.1	4.3	6.3	8.4	60.6
4	.866	.73	.60	.46	.33	.19	.07	8.93	.80	1.9	4.0	5.9	7.9	59.9
15 05	29.864	59.73	89.59	119.45	149.32	179.18	209.05	238.91	268.77	1791.8	3583.7	5375.5	7167.3	8959.2
5	.862	.72	.59	.45	.31	.17	.03	8.9	.75	1.7	3.4	5.1	6.8	8.5
6	.859	.72	.58	.44	.30	.15	.02	8.87	.73	1.5	3.1	4.7	6.2	7.8
7	.857	.71	.57	.43	.28	.14	9.00	8.86	.71	1.4	2.9	4.2	5.7	7.1
8	.855	.71	.56	.42	.27	.12	8.99	8.84	.69	1.2	2.6	3.8	5.1	6.4
15 10	29.852	59.70	89.56	119.41	149.26	179.11	208.97	238.82	268.67	1791.1	3582.3	5373.4	7164.6	8955.7
11	.850	.70	.55	.40	.25	.10	.95	8.9	.65	1.0	2.0	3.0	4.0	5.0
12	.848	.69	.54	.39	.24	.08	.94	8.78	.63	0.8	1.7	2.6	3.4	4.3
13	.845	.69	.54	.38	.22	.07	.92	8.76	.61	0.7	1.5	2.1	2.9	3.6
14	.843	.68	.53	.37	.21	.05	.90	8.74	.59	0.5	1.2	1.7	2.3	2.9
15 15	29.841	59.68	89.52	119.36	149.20	179.04	208.89	238.72	268.56	1790.4	3580.9	5371.3	7161.7	8952.2
15	.838	.68	.52	.35	.19	.03	.87	8.71	.54	0.3	0.6	0.9	1.1	1.5
17	.836	.67	.51	.34	.18	.01	.85	8.69	.52	0.1	0.3	0.5	0.6	0.8
18	.833	.67	.50	.33	.16	9.00	.83	8.67	.50	90.0	80.0	70.0	60.0	50.0
19	.831	.66	.49	.32	.15	8.98	.82	8.65	.48	89.8	79.7	69.6	59.5	49.3
15 20	29.829	59.66	89.49	119.31	149.14	178.97	208.80	238.63	268.46	1789.7	3579.4	5369.2	7158.9	8948.6
21	.826	.66	.48	.30	.13	.96	.78	8.61	.44	9.6	9.1	8.8	8.3	7.9
22	.824	.65	.47	.29	.12	.94	.77	8.59	.42	9.4	8.8	8.3	7.7	7.2
23	.821	.65	.46	.28	.11	.93	.75	8.57	.40	9.3	8.6	7.9	7.2	6.4
24	.819	.64	.46	.27	.10	.91	.74	8.55	.38	9.1	8.3	7.4	6.6	5.7
15 25	29.817	59.64	89.45	119.26	149.08	178.90	208.72	238.54	268.35	1789.0	3578.0	5367.0	7156.0	8945.0
25	.814	.63	.44	.26	.07	.89	.70	8.52	.33	8.9	7.7	6.6	5.4	4.3
27	.812	.63	.44	.25	.06	.87	.69	8.50	.31	8.7	7.4	6.2	4.9	3.6
28	.810	.62	.43	.24	.05	.86	.67	8.48	.29	8.6	7.2	5.7	4.3	2.9
29	.807	.62	.42	.23	.04	.84	.66	8.46	.27	8.4	6.9	5.3	3.8	2.2
15 30	29.805	59.61	89.42	119.22	149.03	178.83	208.64	238.44	268.25	1788.3	3576.6	5364.9	7153.2	8941.5
31	.803	.61	.41	.21	.02	.82	.62	8.42	.23	8.2	6.3	4.5	2.6	0.8
32	.800	.60	.40	.20	9.01	.80	.61	8.40	.21	8.0	6.0	4.0	2.0	40.1
33	.798	.60	.39	.19	8.99	.79	.59	8.38	.18	7.9	5.8	3.6	1.5	39.3
34	.795	.59	.39	.18	.98	.77	.57	8.36	.16	7.7	5.5	3.1	0.9	8.6
15 35	29.793	59.59	89.38	119.17	148.97	178.76	208.55	238.35	268.14	1787.6	3575.2	5362.7	7150.5	8937.9
35	.791	.58	.37	.16	.96	.75	.54	8.33	.12	7.5	4.9	2.3	49.7	7.2
37	.788	.58	.36	.15	.95	.73	.52	8.31	.10	7.3	4.6	1.9	9.1	6.5
38	.786	.57	.36	.14	.93	.72	.50	8.29	.07	7.2	4.3	1.4	8.6	5.7
39	.783	.57	.35	.13	.92	.70	.49	8.27	.05	7.0	4.0	1.0	8.0	5.0
15 40	29.781	59.56	89.34	119.12	148.91	178.69	208.47	238.25	268.03	1786.9	3573.7	5360.6	7147.4	8934.3
41	.779	.56	.34	.11	.90	.67	.45	8.23	8.01	6.7	3.4	60.2	6.8	3.6
42	.776	.55	.33	.10	.88	.66	.44	8.21	7.99	6.6	3.1	59.7	6.2	2.8
43	.774	.55	.32	.09	.87	.64	.42	8.19	7.96	6.4	2.9	9.3	5.7	2.1
44	.771	.54	.31	.08	.86	.63	.40	8.17	7.94	6.3	2.6	8.8	5.1	1.3
15 45	29.769	59.54	89.31	119.07	148.84	178.61	208.39	238.15	267.92	1786.1	3572.3	5358.4	7144.5	8930.6
45	.766	.53	.30	.07	.83	.60	.37	8.13	.90	6.0	2.0	8.0	3.9	29.9
47	.764	.53	.29	.06	.82	.58	.35	8.11	.88	5.8	1.7	7.5	3.3	9.2
48	.761	.52	.28	.05	.81	.57	.33	8.09	.85	5.7	1.4	7.1	2.8	8.4
49	.759	.52	.28	.04	.79	.55	.32	8.07	.83	5.5	1.1	6.6	2.2	7.7
15 50	29.757	59.51	89.27	119.03	148.78	178.54	208.30	238.05	267.81	1785.4	3570.8	5356.2	7141.6	8927.0
51	.754	.51	.26	.02	.77	.53	.28	8.03	.79	5.3	0.5	5.8	1.0	6.3
52	.752	.50	.26	.01	.76	.51	.27	8.01	.77	5.1	70.2	5.3	40.4	5.5
53	.749	.50	.25	9.00	.74	.50	.25	7.99	.74	5.0	69.9	4.9	39.9	4.8
54	.747	.49	.24	8.99	.73	.48	.23	7.97	.72	4.8	9.6	4.4	9.3	4.0
15 55	29.744	59.49	89.23	118.98	148.72	178.47	208.22	237.96	267.70	1784.7	3569.3	5354.0	7138.7	8923.3
55	.742	.48	.23	.97	.71	.45	.20	7.94	.68	4.5	9.0	3.6	8.1	2.6
57	.740	.48	.22	.96	.70	.44	.18	7.92	.66	4.4	8.7	3.1	7.5	1.9
58	.737	.47	.21	.95	.68	.42	.16	7.90	.63	4.2	8.5	2.7	6.9	1.1
59	.735	.47	.20	.94	.67	.41	.15	7.88	.61	4.1	8.2	2.2	6.3	20.4
15 60	29.732	59.46	89.20	118.93	148.66	178.39	208.13	237.86	267.59	1783.9	3567.9	5351.8	7135.7	8919.7

Lat.	Latitude 15° to 16°—Meridional arcs.					Latitude 15°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 15° 30'		Value of 1'	Continuous sums of minutes from latitude 15° 00'	Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	° ' "	Meters.	Meters.
15 00	30.734			1844.04		0 1	1 792.5	0.1
1	4	1	30.74	.04	1	1 844.0		
2	4	2	61.47	.05	2	3 688.1	0 2	3 585.1
3	4	3	92.21	.05	3	5 532.1	3	5 377.6
4	4	4	122.94	.05	4	7 376.2	4	7 170.1
15 05	30.734	5	153.68	1844.05	5	9 220.2	0 5	8 962.7
6	4	6	184.41	.06	6	11 064.3	6	10 755.2
7	4	7	215.15	.06	7	12 908.4	7	12 547.7
8	4	8	245.88	.06	8	14 752.4	8	14 340.2
9	4	9	276.62	.06	9	16 596.5	9	16 132.8
15 10	30.734	10	307.35	1844.07	10	18 440.6	0 10	17 925.3
11	5	1	338.09	.07	1	20 284.6	15	26 887.9
12	5	2	368.82	.07	2	22 128.7	20	35 850.6
13	5	3	399.56	.08	3	23 972.8	25	44 813.2
14	5	4	430.30	.08	4	25 816.9	30	53 775.9
15 15	30.735	15	461.03	1844.08	15	27 660.9	0 35	62 738.5
16	5	6	491.77	.08	6	29 505.0	40	71 701.2
17	5	7	522.50	.09	7	31 349.1	45	80 663.8
18	5	8	553.24	.09	8	33 193.2	50	89 626.4
19	5	9	583.97	.09	9	35 037.3	55	98 589.0
15 20	30.735	20	614.71	1844.10	20	36 881.4	1 00	107 551.6
21	5	1	645.44	.10	1	38 725.5	05	116 514.1
22	5	2	676.18	.10	2	40 569.6	10	125 476.6
23	5	3	706.91	.10	3	42 413.7	15	134 439.2
24	5	4	737.65	.11	4	44 257.8	20	143 401.7
15 25	30.735	25	768.39	1844.11	25	46 101.9	1 25	152 364.2
26	5	6	799.12	.11	6	47 946.0	30	161 326.6
27	5	7	829.86	.12	7	49 790.1	35	170 289.1
28	5	8	860.59	.12	8	51 634.3	40	179 251.5
29	5	9	891.33	.12	9	53 478.4	45	188 213.9
15 30	30.735	30	922.06	1844.12	30	55 322.5	1 50	197 176.3
31	5	1	952.80	.13	1	57 166.6	55	206 138.6
32	5	2	983.53	.13	2	59 010.8	2 00	215 101.9
33	6	3	1 014.27	.13	3	60 854.9	3 00	322 646
34	6	4	1 045.00	.13	4	62 699.0	4 00	430 184
15 35	30.736	35	1 075.74	1844.14	35	64 543.2	5 00	537 713
36	6	6	1 106.47	.14	6	66 387.3	6 00	645 232
37	6	7	1 137.21	.14	7	68 231.4	7 00	752 738
38	6	8	1 167.95	.15	8	70 075.6	8 00	860 228
39	6	9	1 198.68	.15	9	71 919.7	9 00	967 701
15 40	30.736	40	1 229.42	1844.15	40	73 763.9	10 00	1 075 153
41	6	1	1 260.15	.15	1	75 608.0	11 00	1 182 584
42	6	2	1 290.89	.16	2	77 452.2	12 00	1 289 991
43	6	3	1 321.62	.16	3	79 296.3	13 00	1 397 371
44	6	4	1 352.36	.16	4	81 140.5	14 00	1 504 723
15 45	30.736	45	1 383.09	1844.17	45	82 984.6	15 00	1 612 046
46	6	6	1 413.83	.17	6	84 828.8	16 00	1 719 333
47	6	7	1 444.56	.17	7	86 673.0	17 00	1 826 586
48	6	8	1 475.30	.17	8	88 517.2	18 00	1 933 802
49	6	9	1 506.03	.18	9	90 361.3	19 00	2 040 978
15 50	30.736	50	1 536.77	1844.18	50	92 205.5	20 00	2 148 113
51	6	1	1 567.51	.18	1	94 049.7	21 00	2 255 204
52	6	2	1 598.24	.19	2	95 893.9	22 00	2 362 248
53	6	3	1 628.98	.19	3	97 738.1	23 00	2 469 245
54	7	4	1 659.71	.19	4	99 582.3	24 00	2 576 192
15 55	30.737	55	1 690.45	1844.19	55	101 426.5	25 00	2 683 086
56	7	6	1 721.18	.20	6	103 270.6	26 00	2 789 925
57	7	7	1 751.92	.20	7	105 114.8	27 00	2 896 768
58	7	8	1 782.65	.20	8	106 959.0	28 00	3 003 430
59	7	9	1 813.39	.20	9	108 803.3	29 00	3 110 091
15 60	30.737	60	1 844.12	1844.21	60	110 647.5	30 00	3 216 690

Latitude 16° to 17°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
•														
16 00	29.732	59.46	89.20	118.93	148.66	178.39	208.13	237.86	267.59	1783.9	3567.9	5351.8	7135.7	8919.7
1	.730	.46	.19	.92	.65	.38	.11	.84	.57	3.8	7.6	1.4	5.1	8.9
2	.727	.45	.18	.91	.64	.36	.09	.82	.55	3.6	7.3	0.9	4.5	8.2
3	.725	.45	.17	.90	.62	.35	.08	.80	.53	3.5	7.0	0.5	3.9	7.4
4	.722	.44	.17	.89	.61	.33	.06	.78	.51	3.3	6.7	50.0	3.3	6.7
16 05	29.720	59.44	89.16	118.88	148.60	178.32	208.04	237.76	267.48	1783.2	3566.4	5349.6	7132.7	8915.9
5	.717	.43	.15	.87	.59	.30	.02	.74	.46	3.0	6.1	9.1	2.1	5.2
6	.715	.43	.14	.86	.58	.29	.00	.72	.44	2.9	5.8	8.7	1.5	4.4
7	.712	.42	.14	.85	.56	.27	.79	.70	.41	2.7	5.5	8.2	1.0	3.7
8	.710	.42	.13	.84	.55	.26	.97	.68	.39	2.6	5.2	7.8	30.4	2.9
16 10	29.707	59.41	89.12	118.83	148.54	178.24	207.95	237.66	267.37	1782.4	3564.9	5347.3	7129.8	8912.2
11	.705	.41	.11	.82	.53	.23	.93	.64	.35	2.3	4.6	6.9	9.2	1.5
12	.702	.40	.11	.81	.51	.21	.92	.62	.32	2.1	4.3	6.4	8.6	0.7
13	.700	.40	.10	.80	.50	.20	.90	.60	.30	2.0	4.0	6.0	8.0	10.0
14	.697	.39	.09	.79	.49	.18	.88	.58	.28	1.8	3.7	5.5	7.4	09.2
16 15	29.695	59.39	89.08	118.78	148.47	178.17	207.87	237.56	267.26	1781.7	3563.4	5345.1	7126.8	8908.5
15	.692	.38	.08	.77	.46	.15	.85	.54	.23	1.5	3.1	4.6	6.2	7.7
16	.690	.38	.07	.76	.45	.14	.83	.52	.21	1.4	2.8	4.2	5.6	7.0
17	.687	.37	.06	.75	.44	.12	.81	.50	.19	1.2	2.5	3.7	5.0	6.2
18	.685	.37	.06	.74	.42	.11	.80	.48	.16	1.1	2.2	3.3	4.4	5.5
16 20	29.682	59.36	89.05	118.73	148.41	178.09	207.78	237.46	267.14	1780.9	3561.9	5342.8	7123.8	8904.7
21	.680	.36	.04	.72	.40	.08	.76	.44	.12	0.8	1.6	2.4	3.2	3.9
22	.677	.35	.03	.71	.39	.06	.74	.42	.09	0.6	1.3	1.9	2.6	3.1
23	.675	.35	.02	.70	.37	.05	.73	.40	.07	0.5	1.0	1.5	1.9	2.4
24	.672	.34	.02	.69	.36	.03	.71	.38	.05	0.3	0.7	1.0	1.3	1.6
16 25	29.669	59.34	89.01	118.68	148.35	178.02	207.69	237.36	267.02	1780.2	3560.4	5340.6	7120.7	8900.8
25	.667	.33	.00	.67	.34	.00	.67	.34	.00	80.0	60.1	40.1	20.1	900.0
26	.664	.33	.8.99	.66	.33	.7.99	.65	.32	.6.98	79.9	59.8	39.7	19.5	899.3
27	.662	.32	.99	.65	.31	.97	.64	.30	.96	9.7	9.5	9.2	8.9	8.6
28	.660	.32	.98	.64	.30	.96	.62	.28	.93	9.6	9.2	8.8	8.3	7.9
16 30	29.657	59.31	88.97	118.63	148.29	177.94	207.60	237.26	266.91	1779.4	3558.9	5338.3	7117.7	8897.1
31	.654	.31	.96	.62	.28	.93	.58	.24	.89	9.3	8.6	7.8	7.1	6.3
32	.652	.30	.96	.61	.26	.91	.56	.22	.86	9.1	8.3	7.4	6.5	5.6
33	.649	.30	.95	.60	.25	.90	.55	.20	.84	9.0	7.9	6.9	5.8	4.8
34	.647	.29	.94	.59	.24	.88	.53	.18	.82	8.8	7.6	6.5	5.2	4.1
16 35	29.644	59.29	88.93	118.58	148.22	177.87	207.51	237.15	266.79	1778.7	3557.3	5336.0	7114.6	8893.3
35	.642	.28	.92	.57	.21	.85	.49	.13	.77	8.5	7.0	5.5	4.0	2.5
36	.639	.28	.92	.56	.20	.84	.47	.11	.75	8.4	6.7	5.1	3.4	1.8
37	.637	.27	.91	.55	.19	.82	.46	.09	.73	8.2	6.4	4.6	2.8	1.0
38	.634	.27	.90	.54	.17	.81	.44	.07	.70	8.1	6.1	4.2	2.2	90.3
16 40	29.632	59.26	88.89	118.53	148.16	177.79	207.42	237.05	266.68	1777.9	3555.8	5333.7	7111.6	8889.5
41	.629	.26	.89	.52	.15	.77	.40	.03	.66	7.7	5.5	3.2	1.0	8.7
42	.626	.25	.88	.51	.13	.76	.38	.01	.63	7.6	5.2	2.8	10.4	7.9
43	.624	.25	.87	.50	.12	.74	.37	.6.99	.61	7.4	4.8	2.3	09.7	7.2
44	.621	.24	.86	.49	.11	.73	.35	.97	.59	7.3	4.5	1.9	9.1	6.4
16 45	29.619	59.24	88.86	118.47	148.09	177.71	207.33	236.95	266.56	1777.1	3554.2	5331.4	7108.5	8885.6
45	.616	.23	.85	.46	.08	.70	.31	.93	.54	7.0	3.9	0.9	7.9	4.8
46	.614	.23	.84	.45	.07	.68	.29	.91	.52	6.8	3.6	0.5	7.3	4.1
47	.611	.22	.83	.44	.06	.67	.28	.89	.50	6.7	3.3	30.0	6.6	3.3
48	.609	.22	.83	.43	.04	.65	.26	.87	.47	6.5	3.0	29.6	6.0	2.6
16 50	29.606	59.21	88.82	118.42	148.03	177.64	207.24	236.85	266.45	1776.4	3552.7	5329.1	7105.4	8881.8
51	.603	.21	.81	.41	.02	.62	.22	.83	.43	6.2	2.4	8.6	4.8	1.0
52	.601	.20	.80	.40	.00	.61	.20	.81	.40	6.1	2.1	8.1	4.2	90.2
53	.598	.20	.79	.39	.7.99	.59	.19	.79	.38	5.9	1.7	7.7	3.5	79.4
54	.595	.19	.79	.38	.98	.58	.17	.77	.36	5.8	1.4	7.2	2.9	8.6
16 55	29.593	59.19	88.78	118.37	147.96	177.56	207.15	236.74	266.33	1775.6	3551.1	5326.7	7102.3	8877.8
55	.590	.18	.77	.36	.95	.54	.13	.72	.31	5.4	0.8	6.2	1.7	7.0
56	.587	.18	.76	.35	.94	.53	.11	.70	.29	5.3	0.5	5.8	1.1	6.2
57	.585	.17	.76	.34	.93	.51	.10	.68	.27	5.1	50.2	5.3	100.4	5.5
58	.582	.17	.75	.33	.91	.50	.08	.66	.24	5.0	49.9	4.9	099.8	4.7
16 60	29.580	59.16	88.74	118.32	147.90	177.48	207.06	236.64	266.22	1774.8	3549.6	5324.4	7099.2	8873.9

Lat.	Latitude 16° to 17°—Meridional arcs.						Latitude 16°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 16° 30'		Value of 1'	Continuous sums of minutes from latitude 16° 00'		Longitude.	X	Y
	Meters.	''	Meters.	Meters.	'	Meters.	° '	Meters.	Meters.
16 00	30.737			1844.21			0 1	1 783.9	0.1
1	7	1	30.74	.21	1	1 844.2	0 2	3 567.9	0.3
2	7	2	61.48	.21	2	3 688.4	3	5 351.8	0.6
3	7	3	92.21	.22	3	5 532.6	4	7 135.7	1.1
4	7	4	122.95	.22	4	7 376.9	0 5	8 919.7	1.8
16 05	30.737	5	153.69	1844.22	5	9 221.1	0 6	10 703.6	2.6
6	7	6	184.43	.23	6	11 065.3	7	12 487.5	3.5
7	7	7	215.17	.23	7	12 909.5	8	14 271.4	4.6
8	7	8	245.91	.23	8	14 753.7	9	16 055.4	5.8
9	7	9	276.64	.23	9	16 598.0	0 10	17 839.3	7.2
16 10	30.737	10	307.38	1844.24	10	18 442.2	15	26 758.9	16.1
11	7	1	338.12	.24	1	20 286.5	20	35 678.6	28.6
12	7	2	368.86	.24	2	22 130.7	25	44 598.2	44.7
13	7	3	399.60	.25	3	23 975.0	30	53 517.9	64.4
14	7	4	430.34	.25	4	25 819.2	0 35	62 437.5	87.6
16 15	30.738	15	461.07	1844.25	15	27 663.5	40	71 357.1	114.4
16	8	6	491.81	.26	6	29 507.7	45	80 276.7	144.8
17	8	7	522.55	.26	7	31 352.0	50	89 196.3	178.8
18	8	8	553.29	.26	8	33 196.3	55	98 115.9	216.4
19	8	9	584.03	.26	9	35 040.5	1 00	107 035.4	257.5
16 20	30.738	20	614.77	1844.27	20	36 884.8	05	115 955.0	302.2
21	8	1	645.50	.27	1	38 729.1	10	124 874.5	350.4
22	8	2	676.24	.27	2	40 573.3	15	133 794.0	402.3
23	8	3	706.98	.28	3	42 417.6	20	142 713.5	457.7
24	8	4	737.72	.28	4	44 261.9	1 25	151 633.0	516.7
16 25	30.738	25	768.46	1844.28	25	46 106.2	30	160 552.4	579.3
26	8	6	799.20	.28	6	47 950.5	35	169 471.8	645.4
27	8	7	829.93	.29	7	49 794.7	40	178 391.2	715.2
28	8	8	860.67	.29	8	51 639.0	45	187 310.5	788.5
29	8	9	891.41	.29	9	53 483.3	1 50	196 229.8	865.4
16 30	30.738	30	922.15	1844.30	30	55 327.6	55	205 149.1	945.8
31	8	1	952.89	.30	1	57 171.9	00	214 068	1 030
32	8	2	983.63	.30	2	59 016.2	05	321 097	2 317
33	8	3	1 014.36	.31	3	60 860.5	10	428 117	4 119
34	8	4	1 045.10	.31	4	62 704.8	15	535 127	6 436
16 35	30.739	35	1 075.84	1844.31	35	64 549.2	20	642 126	9 268
36	9	6	1 106.58	.31	6	66 393.5	25	749 110	12 614
37	9	7	1 137.32	.32	7	68 237.8	30	856 075	16 476
38	9	8	1 168.06	.32	8	70 082.1	35	963 022	20 852
39	9	9	1 198.79	.32	9	71 926.4	40	1 069 946	25 741
16 40	30.739	40	1 229.53	1844.33	40	73 770.8	45	1 176 845	31 145
41	9	1	1 260.27	.33	1	75 615.1	50	1 283 717	37 064
42	9	2	1 291.01	.33	2	77 459.4	05	1 390 559	43 497
43	9	3	1 321.75	.34	3	79 303.8	10	1 497 369	50 444
44	9	4	1 352.48	.34	4	81 148.1	15	1 604 146	57 904
16 45	30.739	45	1 383.22	1844.34	45	82 992.4	20	1 710 883	65 878
46	9	6	1 413.96	.34	6	84 836.8	25	1 817 582	74 365
47	9	7	1 444.70	.35	7	86 681.1	30	1 924 239	83 366
48	9	8	1 475.44	.35	8	88 525.5	35	2 030 851	92 880
49	9	9	1 506.18	.35	9	90 369.8	40	2 137 416	102 906
16 50	30.739	50	1 536.91	1844.36	50	92 214.2	45	2 243 932	113 445
51	9	1	1 567.65	.36	1	94 058.5	50	2 350 395	124 496
52	9	2	1 598.39	.36	2	95 902.9	05	2 456 804	136 059
53	9	3	1 629.13	.36	3	97 747.2	10	2 563 157	148 134
54	39	4	1 659.87	.37	4	99 591.6	15	2 669 451	160 720
16 55	30.740	55	1 690.61	1844.37	55	101 436.0	20	2 775 682	173 818
56	0	6	1 721.34	.37	6	103 280.3	25	2 881 849	187 427
57	0	7	1 752.08	.38	7	105 124.7	30	2 987 949	201 546
58	0	8	1 782.82	.38	8	106 969.1	35	3 093 980	216 175
59	0	9	1 813.56	.38	9	108 813.5	40	3 199 941	231 315
16 60	30.740	60	1 844.30	1844.39	60	110 657.8	45		

Latitude 17° to 18°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
17 00	29.580	59.16	88.74	118.32	147.90	177.48	207.06	236.64	266.22	1774.8	3549.6	5324.4	7099.2	8873.9
1	.577	.16	.73	.31	.89	.46	.04	.62	.20	4.6	9.3	3.9	8.6	3.1
2	.574	.15	.72	.30	.87	.45	.02	.60	.17	4.5	9.0	3.4	7.9	2.3
3	.572	.15	.72	.29	.86	.43	7.01	.58	.15	4.3	8.6	3.0	7.3	1.6
4	.569	.14	.71	.28	.85	.42	6.99	.56	.12	4.2	8.3	2.5	6.6	0.8
17 05	29.567	59.14	88.70	118.26	147.83	177.40	206.97	236.53	266.10	1774.0	3548.0	5322.0	7096.0	8870.0
5	.564	.13	.69	.25	.82	.38	.95	.51	.08	3.8	7.7	1.5	5.4	69.2
6	.561	.13	.68	.24	.81	.37	.93	.49	.05	3.7	7.4	1.0	4.8	8.4
7	.559	.12	.68	.23	.80	.35	.92	.47	.03	3.5	7.0	0.6	4.1	7.7
8	.556	.12	.67	.22	.78	.34	.90	.45	6.00	3.4	6.7	20.1	3.5	6.9
17 10	29.554	59.11	88.66	118.21	147.77	177.32	206.88	236.43	5.98	1773.2	3546.4	5319.6	7092.9	8866.1
9	.551	.10	.65	.20	.76	.30	.86	.41	.96	3.0	6.1	9.1	2.3	5.3
10	.548	.10	.64	.19	.74	.29	.84	.39	.93	2.9	5.8	8.7	1.6	4.5
11	.546	.09	.64	.18	.73	.27	.82	.37	.91	2.7	5.4	8.2	1.0	3.7
12	.543	.09	.63	.17	.72	.26	.80	.35	.88	2.6	5.1	7.8	90.3	2.9
17 15	29.540	59.08	88.62	118.16	147.70	177.24	206.79	236.32	265.86	1772.4	3544.8	5317.3	7089.7	8862.1
13	.538	.07	.61	.15	.69	.22	.77	.30	.84	2.2	4.5	6.8	9.1	1.3
14	.535	.07	.60	.14	.68	.21	.75	.28	.81	2.1	4.2	6.3	8.4	60.5
15	.532	.06	.60	.13	.67	.19	.73	.26	.79	1.9	3.8	5.9	7.8	59.7
16	.530	.06	.59	.12	.65	.18	.71	.24	.77	1.8	3.5	5.4	7.1	8.9
17 20	29.527	59.05	88.58	118.11	147.64	177.16	206.69	236.22	265.74	1771.6	3543.2	5314.9	7086.5	8858.1
17	.524	.05	.57	.10	.63	.14	.67	.20	.72	1.4	2.9	4.4	5.9	7.3
18	.522	.04	.56	.09	.61	.13	.65	.18	.69	1.3	2.6	3.9	5.2	6.5
19	.519	.04	.56	.08	.60	.11	.63	.15	.67	1.1	2.2	3.5	4.6	5.7
20	.516	.03	.55	.07	.58	.10	.61	.13	.64	1.0	1.9	3.0	3.9	4.9
17 25	29.514	59.03	88.54	118.05	147.57	177.08	206.60	236.11	265.62	1770.8	3541.6	5312.5	7083.3	8854.1
21	.511	.02	.53	.04	.56	.06	.58	.09	.60	0.6	1.3	2.1	2.7	3.3
22	.508	.02	.52	.03	.54	.05	.56	.07	.57	0.5	1.0	1.6	2.0	2.5
23	.506	.01	.52	.02	.53	.03	.54	.04	.55	0.3	0.6	1.1	1.4	1.7
24	.503	.01	.51	.01	.51	.02	.52	.02	.52	0.2	0.3	0.6	0.7	0.9
17 30	29.500	59.00	88.50	118.00	147.50	177.00	206.50	236.00	265.50	1770.0	3540.0	5310.1	7080.1	8850.1
25	.498	9.00	.49	7.99	.49	6.98	.48	5.98	.48	69.8	39.7	09.6	79.4	49.3
26	.495	8.99	.48	7.98	.47	6.97	.46	5.96	.45	9.7	9.4	9.1	8.8	8.5
27	.492	.99	.48	.97	.46	.95	.44	.94	.43	9.5	9.0	8.6	8.1	7.6
28	.489	.98	.47	.96	.45	.94	.42	.92	.40	9.4	8.7	8.1	7.5	6.8
17 35	29.487	58.98	88.46	117.94	147.43	176.92	206.41	235.89	265.38	1769.2	3538.4	5307.6	7076.8	8846.0
29	.484	.97	.45	.93	.42	.90	.39	.87	.36	9.0	8.1	7.1	6.2	5.2
30	.481	.97	.44	.92	.41	.89	.37	.85	.33	8.9	7.8	6.6	5.5	4.4
31	.479	.96	.44	.91	.40	.87	.35	.83	.31	8.7	7.4	6.2	4.9	3.6
32	.476	.96	.43	.90	.38	.86	.33	.81	.28	8.6	7.1	5.7	4.2	2.8
17 40	29.473	58.95	88.42	117.89	147.37	176.84	206.31	235.79	265.26	1768.4	3536.8	5305.2	7073.6	8842.0
33	.471	.94	.41	.88	.36	.82	.29	.77	.24	8.2	6.5	4.7	2.9	1.2
34	.468	.94	.40	.87	.34	.81	.27	.75	.21	8.1	6.2	4.2	2.3	40.4
35	.465	.93	.40	.86	.33	.79	.25	.72	.19	7.9	5.8	3.7	1.6	39.5
36	.462	.93	.39	.85	.31	.78	.23	.70	.16	7.8	5.5	3.2	1.0	8.7
17 45	29.460	58.92	88.38	117.83	147.30	176.76	206.22	235.68	265.14	1767.6	3535.2	5302.7	7070.3	8837.9
37	.457	.91	.37	.82	.29	.74	.20	.66	.11	7.4	4.9	2.2	69.6	7.1
38	.454	.91	.36	.81	.27	.73	.18	.64	.09	7.3	4.5	1.7	9.0	6.3
39	.451	.90	.35	.80	.26	.71	.16	.61	.06	7.1	4.2	1.3	8.3	5.4
40	.449	.90	.35	.79	.24	.70	.14	.59	.03	7.0	3.8	0.8	7.7	4.6
17 50	29.446	58.89	88.34	117.78	147.23	176.68	206.12	235.57	265.01	1766.8	3533.5	5300.3	7067.0	8833.8
41	.443	.89	.33	.77	.22	.66	.10	.55	4.99	6.6	3.2	299.8	6.3	3.0
42	.441	.88	.32	.76	.20	.64	.08	.53	.96	6.4	2.9	9.3	5.7	2.2
43	.438	.88	.31	.75	.19	.63	.06	.50	.94	6.3	2.5	8.8	5.0	1.3
44	.435	.87	.31	.74	.17	.61	.04	.48	.91	6.1	2.2	8.3	4.4	30.5
17 55	29.432	58.87	88.30	117.72	147.16	176.59	206.03	235.46	264.89	1765.9	3531.9	5297.8	7063.7	8829.7
45	.430	.86	.29	.71	.15	.58	6.01	.44	.87	5.8	1.6	7.3	3.0	8.9
46	.427	.86	.28	.70	.13	.56	5.99	.42	.84	5.6	1.2	6.8	2.4	8.0
47	.424	.85	.27	.69	.12	.54	.97	.39	.82	5.4	0.9	6.3	1.7	7.2
48	.421	.85	.26	.68	.10	.53	.95	.37	.79	5.3	0.5	5.8	1.1	6.3
17 60	29.418	58.84	88.26	117.67	147.09	176.51	205.93	235.35	264.77	1765.1	3530.2	5295.3	7060.4	8825.5

Lat.	Latitude 17° to 18°—Meridional arcs.						Latitude 17°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 17° 30'		Value of 1'	Continuous sums of minutes from latitude 17° 00'		Longitude.	X	Y
• /	Meters.	"	Meters.	Meters.	'	Meters.	• /	Meters.	Meters.
17 00	30.740			1844.39			0 1	1 774.8	0.1
1	0	1	30.74	.39	1	1 844.4	0 2	3 549.6	0.3
2	0	2	61.48	.39	2	3 688.8	0 3	5 324.4	0.7
3	0	3	92.22	.39	3	5 533.2	0 4	7 099.2	1.2
4	0	4	122.97	.40	4	7 377.6	0 5	8 873.9	1.9
17 05	30.740	5	153.71	1844.40	5	9 222.0	0 6	10 648.7	2.7
6	0	6	184.45	.40	6	11 066.4	0 7	12 423.5	3.7
7	0	7	215.19	.41	7	12 910.8	0 8	14 198.3	4.8
8	0	8	245.93	.41	8	14 755.2	0 9	15 973.1	6.1
9	0	9	276.67	.41	9	16 599.6			
17 10	30.740	10	307.41	1844.42	10	18 444.0	0 10	17 747.9	7.5
11	0	11	338.15	.42	11	20 288.5	0 15	26 621.8	17.0
12	0	12	368.90	.42	12	22 132.9	0 20	35 495.8	30.2
13	0	13	399.64	.43	13	23 977.3	0 25	44 369.6	47.2
14	0	14	430.38	.43	14	25 821.7	0 30	53 243.6	67.9
17 15	30.741	15	461.12	1844.43	15	27 666.2	0 35	62 117.5	92.4
16	1	16	491.86	.44	16	29 510.6	0 40	70 991.4	120.7
17	1	17	522.60	.44	17	31 355.0	0 45	79 865.3	152.8
18	1	18	553.34	.44	18	33 199.5	0 50	88 739.1	188.7
19	1	19	584.09	.44	19	35 043.9	0 55	97 613.0	228.3
17 20	30.741	20	614.83	1844.45	20	36 888.4	1 00	106 486.9	271.7
21	1	1	645.57	.45	21	38 732.8	1 05	115 360.7	318.8
22	1	2	676.31	.45	22	40 577.3	1 10	124 234.5	369.8
23	1	3	707.05	.46	23	42 421.7	1 15	133 108.3	424.5
24	1	4	737.79	.46	24	44 266.2	1 20	141 982.0	483.0
17 25	30.741	25	768.53	1844.46	25	46 110.7	1 25	150 855.7	545.2
26	1	6	799.27	.47	26	47 955.1	1 30	159 729.4	611.3
27	1	7	830.02	.47	27	49 799.6	1 35	168 603.1	681.1
28	1	8	860.76	.47	28	51 644.1	1 40	177 476.8	754.7
29	1	9	891.50	.48	29	53 488.6	1 45	186 350.4	832.1
17 30	30.741	30	922.24	1844.48	30	55 333.0	1 50	195 223.9	913.2
31	1	1	952.98	.48	31	57 177.5	1 55	204 097.5	998.1
32	1	2	983.72	.49	32	59 022.0	2 00	212 971	1 087
33	1	3	1 014.46	.49	33	60 866.5	2 05	221 845	1 178
34	1	4	1 045.21	.49	34	62 711.0	2 10	230 719	1 270
17 35	30.742	35	1 075.95	1844.50	35	64 555.5	2 15	239 593	1 363
36	2	6	1 106.69	.50	36	66 400.0	2 20	248 467	1 457
37	2	7	1 137.43	.50	37	68 244.5	2 25	257 341	1 551
38	2	8	1 168.17	.50	38	70 089.0	2 30	266 215	1 646
39	2	9	1 198.91	.51	39	71 933.5	2 35	275 089	1 741
17 40	30.742	40	1 229.65	1844.51	40	73 778.0	2 40	283 963	1 836
41	2	1	1 260.39	.51	41	75 622.5	2 45	292 837	1 931
42	2	2	1 291.14	.52	42	77 467.0	2 50	301 711	2 026
43	2	3	1 321.88	.52	43	79 311.6	2 55	310 585	2 121
44	2	4	1 352.62	.52	44	81 156.1	2 60	319 459	2 216
17 45	30.742	45	1 383.36	1844.53	45	83 000.6	2 65	328 333	2 311
46	2	6	1 414.10	.53	46	84 845.1	2 70	337 207	2 406
47	2	7	1 444.84	.53	47	86 689.7	2 75	346 081	2 501
48	2	8	1 475.58	.54	48	88 534.2	2 80	354 955	2 596
49	2	9	1 506.33	.54	49	90 378.7	2 85	363 829	2 691
17 50	30.742	50	1 537.07	1844.54	50	92 223.3	2 90	372 703	2 786
51	2	1	1 567.81	.55	51	94 067.8	2 95	381 577	2 881
52	2	2	1 598.55	.55	52	95 912.3	3 00	390 451	2 976
53	3	3	1 629.29	.55	53	97 756.9	3 05	399 325	3 071
54	3	4	1 660.03	.55	54	99 601.4	3 10	408 199	3 166
17 55	30.743	55	1 690.77	1844.56	55	101 446.0	3 15	417 073	3 261
56	3	6	1 721.51	.56	56	103 290.6	3 20	425 947	3 356
57	3	7	1 752.26	.56	57	105 135.1	3 25	434 821	3 451
58	3	8	1 783.00	.57	58	106 979.7	3 30	443 695	3 546
59	3	9	1 813.74	.57	59	108 824.3	3 35	452 569	3 641
17 60	30.743	60	1 844.48	1844.57	60	110 668.8	3 40	461 443	3 736

Latitude 18° to 19°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
18 00	29.418	58.84	88.26	117.67	147.09	176.51	205.93	235.35	264.77	1765.1	3530.2	5295.3	7060.4	8825.5
1	.416	.83	.25	.66	.08	.49	.91	.33	.75	4.9	29.9	4.8	59.7	4.7
2	.413	.83	.24	.65	.06	.48	.89	.31	.72	4.8	9.5	4.3	9.1	3.9
3	.410	.82	.23	.64	.05	.46	.87	.28	.70	4.6	9.2	3.8	8.4	3.0
4	.407	.82	.22	.63	.03	.44	.85	.26	.67	4.4	8.8	3.3	7.8	2.2
18 05	29.405	58.81	88.21	117.61	147.02	176.43	205.84	235.24	264.65	1764.3	3528.5	5292.8	7057.1	8821.4
5	.402	.80	.21	.60	7.01	.41	.82	.22	.62	4.1	8.2	2.3	6.4	20.6
6	.399	.80	.20	.59	6.99	.39	.80	.20	.60	3.9	7.9	1.8	5.8	19.7
7	.396	.79	.19	.58	.98	.38	.78	.17	.57	3.8	7.5	1.3	5.1	8.9
8	.393	.79	.18	.57	.96	.36	.76	.15	.55	3.6	7.2	0.8	4.5	8.0
18 10	29.391	58.78	88.17	117.56	146.95	176.34	205.74	235.13	264.52	1763.4	3526.9	5290.3	7053.8	8817.2
11	.388	.78	.16	.55	.94	.32	.72	.11	.49	3.2	6.6	89.8	3.1	6.4
12	.385	.77	.15	.54	.92	.31	.70	.08	.47	3.1	6.2	9.3	2.4	5.5
13	.382	.77	.15	.53	.91	.29	.68	.06	.44	2.9	5.9	8.8	1.8	4.7
14	.379	.76	.14	.52	.89	.28	.66	.04	.42	2.8	5.5	8.3	1.1	3.8
18 15	29.377	58.76	88.13	117.50	146.88	176.26	205.64	235.01	264.39	1762.6	3525.2	5287.8	7050.4	8813.0
15	.374	.75	.12	.49	.87	.24	.62	4.99	.36	2.4	4.9	7.3	49.7	2.2
16	.371	.75	.11	.48	.85	.23	.60	.97	.34	2.3	4.5	6.8	9.1	1.3
17	.368	.74	.11	.47	.84	.21	.58	.95	.31	2.1	4.2	6.3	8.4	10.5
18	.365	.74	.10	.46	.82	.20	.56	.92	.29	2.0	3.8	5.8	7.8	09.6
18 20	29.363	58.73	88.09	117.45	146.81	176.18	205.54	234.90	264.26	1761.8	3523.5	5285.3	7047.1	8808.8
21	.360	.72	.08	.44	.80	.16	.52	.88	.24	1.6	3.2	4.8	6.4	8.0
22	.357	.72	.07	.43	.78	.14	.50	.86	.21	1.4	2.8	4.3	5.7	7.1
23	.354	.71	.06	.42	.77	.13	.48	.83	.19	1.3	2.5	3.7	5.1	6.3
24	.351	.71	.05	.41	.75	.11	.46	.81	.16	1.1	2.1	3.2	4.4	5.4
18 25	29.349	58.70	88.05	117.39	146.74	176.09	205.44	234.79	264.14	1760.9	3521.8	5282.7	7043.7	8804.6
25	.346	.69	.04	.38	.73	.07	.42	.77	.11	0.7	1.5	2.2	3.0	3.7
26	.343	.69	.03	.37	.71	.06	.40	.75	.09	0.6	1.1	1.7	2.3	2.9
27	.340	.68	.02	.36	.70	.04	.38	.72	.06	0.4	0.8	1.2	1.7	2.0
28	.337	.68	.01	.35	.68	.03	.36	.70	.04	0.3	0.4	0.7	1.0	1.2
18 30	29.334	58.67	88.00	117.34	146.67	176.01	205.34	234.68	264.01	1760.1	3520.1	5280.2	7040.3	8800.3
31	.332	.66	7.99	.33	.66	5.99	.32	.66	3.98	59.9	19.8	79.7	39.6	799.5
32	.329	.66	.99	.32	.64	.97	.30	.63	.96	9.7	9.4	9.2	8.9	8.6
33	.326	.65	.98	.30	.63	.96	.28	.61	.93	9.6	9.1	8.6	8.2	7.7
34	.323	.65	.97	.29	.61	.94	.26	.59	.91	9.4	8.7	8.1	7.5	6.9
18 35	29.320	58.64	87.96	117.28	146.60	175.92	205.24	234.56	263.88	1759.2	3518.4	5277.6	7036.8	8796.1
35	.317	.63	.95	.27	.59	.90	.22	.54	.85	9.0	8.1	7.1	6.1	5.2
36	.315	.63	.94	.26	.57	.89	.20	.52	.83	8.9	7.7	6.6	5.4	4.4
37	.312	.62	.94	.24	.56	.87	.18	.50	.80	8.7	7.4	6.1	4.8	3.5
38	.309	.62	.93	.23	.54	.86	.16	.47	.78	8.6	7.0	5.6	4.1	2.7
18 40	29.306	58.61	87.92	117.22	146.53	175.84	205.14	234.45	263.75	1758.4	3516.7	5275.1	7033.4	8791.8
41	.303	.60	.91	.21	.52	.82	.12	.43	.72	8.2	6.4	4.6	2.7	0.9
42	.300	.60	.90	.20	.50	.80	.10	.40	.70	8.0	6.0	4.1	2.0	90.1
43	.297	.59	.89	.19	.49	.79	.08	.38	.67	7.9	5.7	3.5	1.4	89.2
44	.295	.59	.88	.18	.47	.77	.06	.36	.65	7.7	5.3	3.0	0.7	8.4
18 45	29.292	58.58	87.87	117.15	146.46	175.75	205.04	234.33	263.62	1757.5	3515.0	5272.5	7030.0	8787.5
45	.289	.57	.87	.15	.45	.73	.02	.31	.59	7.3	4.7	2.0	29.3	6.6
46	.286	.57	.86	.14	.43	.71	5.00	.29	.57	7.1	4.3	1.5	8.6	5.8
47	.283	.56	.85	.13	.42	.70	4.98	.27	.54	7.0	4.0	0.9	7.9	4.9
48	.280	.56	.84	.12	.40	.68	.96	.24	.52	6.8	3.6	70.4	7.2	4.1
18 50	29.277	58.55	87.83	117.11	146.39	175.66	204.94	234.22	263.49	1756.6	3513.3	5269.9	7026.5	8783.2
51	.274	.55	.82	.10	.38	.64	.92	.20	.46	6.4	2.9	9.4	5.8	2.3
52	.271	.54	.81	.09	.36	.63	.90	.17	.44	6.3	2.6	8.9	5.1	1.4
53	.269	.54	.81	.07	.35	.61	.88	.15	.41	6.1	2.2	8.3	4.4	80.6
54	.266	.53	.80	.06	.33	.59	.86	.13	.39	5.9	1.9	7.8	3.7	79.7
18 55	29.263	58.53	87.79	117.05	146.32	175.58	204.84	234.10	263.37	1755.8	3511.5	5267.3	7023.0	8778.8
55	.260	.52	.78	.04	.30	.56	.82	.08	.35	5.6	1.2	6.8	2.3	7.9
56	.257	.52	.77	.03	.29	.54	.80	.06	.31	5.4	0.8	6.3	1.6	7.1
57	.254	.51	.76	.01	.27	.52	.78	.04	.28	5.2	0.5	5.7	1.0	6.2
58	.251	.51	.75	7.00	.26	.51	.76	4.01	.26	5.1	10.1	5.2	20.3	5.4
18 60	29.248	58.50	87.74	116.99	146.24	175.49	204.74	233.99	263.23	1754.9	3509.8	5264.7	7019.6	8774.5

Lat.	Latitude 18° to 19°—Meridional arcs.						Latitude 18°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 18° 30'		Value of 1'	Continuous sums of minutes from latitude 18° 00'		Longitude.	X	Y
	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
18 20	30.743			1844.57					
1	3	1	30.74	.58	1	1 844.6	0 1	1 765.1	0.1
2	3	2	61.49	.58	2	3 689.2	2	3 530.2	0.3
3	3	3	92.23	.58	3	5 533.7	3	5 295.3	0.7
4	3	4	122.98	.59	4	7 378.3	4	7 060.4	1.3
18 05	30.743	5	153.72	1844.59	5	9 222.9	0 5	8 825.5	2.0
6	3	6	184.47	.59	6	11 067.5	6	10 590.6	2.9
7	3	7	215.21	.60	7	12 912.1	7	12 355.7	3.9
8	3	8	245.96	.60	8	14 756.7	8	14 120.8	5.1
9	3	9	276.70	.60	9	16 601.3	9	15 886.0	6.4
18 10	30.743	10	307.45	1844.61	10	18 445.9	0 10	17 651.1	7.9
11	3	1	338.19	.61	1	20 290.5	15	26 476.6	17.8
12	4	2	368.93	.61	2	22 135.1	20	35 302.1	31.7
13	4	3	399.68	.62	3	23 979.8	25	44 127.7	49.6
14	4	4	430.42	.62	4	25 824.4	30	52 953.2	71.4
18 15	30.744	15	461.17	1844.62	15	27 669.0	0 35	61 778.7	97.2
16	4	6	491.91	.62	6	29 513.6	40	70 604.2	126.9
17	4	7	522.66	.63	7	31 358.2	45	79 429.7	160.6
18	4	8	553.40	.63	8	33 202.9	50	88 255.1	198.3
19	4	9	584.15	.63	9	35 047.5	55	97 080.6	240.0
18 20	30.744	20	614.89	1844.64	20	36 892.2	1 00	105 906.0	285.6
21	4	1	645.64	.64	1	38 736.8	05	114 731.4	335.2
22	4	2	676.38	.64	2	40 581.4	10	123 556.8	388.7
23	4	3	707.12	.65	3	42 426.1	15	132 382.1	446.2
24	4	4	737.87	.65	4	44 270.7	20	141 207.5	507.7
18 25	30.744	25	768.61	1844.65	25	46 115.4	1 25	150 032.8	573.2
26	4	6	799.36	.66	6	47 960.0	30	158 858.0	642.6
27	4	7	830.10	.66	7	49 804.7	35	167 683.3	716.0
28	4	8	860.85	.66	8	51 649.4	40	176 508.5	793.3
29	4	9	891.59	.67	9	53 494.0	45	185 333.6	874.6
18 30	30.744	30	922.33	1844.67	30	55 338.7	1 50	194 158.8	959.9
31	5	1	953.08	.67	1	57 183.4	55	202 983.8	1 049.2
32	5	2	983.83	.68	2	59 028.1	2 00	211 809	1 142
33	5	3	1 014.57	.68	3	60 872.7	3 00	317 706	2 570
34	5	4	1 045.31	.68	4	62 717.4	4 00	423 593	4 569
18 35	30.745	35	1 076.06	1844.69	35	64 562.1	5 00	529 468	7 139
36	5	6	1 106.80	.69	6	66 406.8	6 00	635 328	10 280
37	5	7	1 137.55	.69	7	68 251.5	7 00	741 169	13 992
38	5	8	1 168.29	.70	8	70 096.2	8 00	846 989	18 275
39	5	9	1 199.04	.70	9	71 940.9	9 00	952 784	23 129
18 40	30.745	40	1 229.78	1844.70	40	73 785.6	10 00	1 058 552	28 553
41	5	1	1 260.53	.71	1	75 630.3	11 00	1 164 289	34 547
42	5	2	1 291.27	.71	2	77 475.0	12 00	1 269 991	41 112
43	5	3	1 322.02	.71	3	79 319.7	13 00	1 375 657	48 246
44	5	4	1 352.76	.72	4	81 164.4	14 00	1 481 283	55 950
18 45	30.745	45	1 383.50	1844.72	45	83 009.2	15 00	1 586 865	64 224
46	5	6	1 414.25	.72	6	84 853.9	16 00	1 692 402	73 067
47	5	7	1 444.99	.73	7	86 698.6	17 00	1 797 890	82 479
48	5	8	1 475.74	.73	8	88 543.3	18 00	1 903 324	92 461
49	5	9	1 506.48	.73	9	90 388.0	19 00	2 008 704	103 011
18 50	30.746	50	1 537.23	1844.74	50	92 232.8	20 00	2 114 025	114 128
51	6	1	1 567.97	.74	1	94 077.5	21 00	2 219 285	125 813
52	6	2	1 598.72	.74	2	95 922.3	22 00	2 324 480	138 066
53	6	3	1 629.46	.75	3	97 767.0	23 00	2 429 607	150 887
54	6	4	1 660.21	.75	4	99 611.8	24 00	2 534 664	164 274
18 55	30.746	55	1 690.95	1844.75	55	101 456.5	25 00	2 639 647	178 227
56	6	6	1 721.69	.76	6	103 301.3	26 00	2 744 554	192 746
57	6	7	1 752.44	.76	7	105 146.1	27 00	2 849 381	207 831
58	6	8	1 783.18	.76	8	106 990.8	28 00	2 954 124	223 482
59	6	9	1 813.93	.77	9	108 835.6	29 00	3 058 782	239 697
18 60	30.746	60	1 844.67	1844.77	60	110 680.4	30 00	3 163 350	256 476

Latitude 19° to 20°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
19 00	29.248	58.50	87.74	116.99	146.24	175.49	204.74	233.99	263.23	1754.9	3509.8	5264.7	7019.6	8774.5
01	.245	.49	.74	.98	.23	.47	.72	.97	.20	4.7	9.4	4.2	8.9	3.6
02	.242	.49	.73	.97	.21	.45	.70	.94	.18	4.5	9.1	3.6	8.2	2.7
03	.240	.48	.72	.96	.20	.44	.68	.92	.15	4.4	8.7	3.1	7.5	1.9
04	.237	.48	.71	.95	.18	.42	.66	.89	.13	4.2	8.4	2.5	6.8	1.0
19 05	29.234	58.47	87.70	116.93	146.17	175.40	204.63	233.87	263.10	1754.0	3508.0	5262.0	7016.1	8770.1
06	.231	.46	.69	.92	.16	.38	.61	.85	.07	3.8	7.7	1.5	5.4	69.2
07	.228	.46	.68	.91	.14	.36	.59	.82	.05	3.6	7.3	1.0	4.7	8.3
08	.225	.45	.68	.90	.13	.35	.57	.80	.02	3.5	7.0	60.4	4.0	7.5
09	.222	.45	.67	.89	.11	.33	.55	.77	63.00	3.3	6.6	59.9	3.3	6.6
19 10	29.219	58.44	87.66	116.88	146.10	175.31	204.53	233.75	262.97	1753.1	3506.3	5259.4	7012.6	8765.7
11	.216	.43	.65	.87	.09	.29	.51	.73	.94	2.9	5.9	8.9	1.9	4.8
12	.213	.43	.64	.86	.07	.28	.49	.70	.92	2.8	5.6	8.4	1.2	3.9
13	.210	.42	.63	.84	.06	.26	.47	.68	.89	2.6	5.2	7.8	10.4	3.1
14	.207	.42	.62	.83	.04	.24	.45	.66	.87	2.4	4.9	7.3	09.7	2.2
19 15	29.204	58.41	87.61	116.82	146.03	175.23	204.43	233.63	262.84	1752.3	3504.5	5256.8	7009.0	8761.3
16	.201	.40	.60	.81	.01	.21	.41	.61	.81	2.1	4.1	6.3	8.3	60.4
17	.198	.40	.60	.80	6.00	.19	.39	.59	.79	1.9	3.8	5.7	7.6	59.5
18	.196	.39	.59	.78	5.98	.17	.37	.57	.76	1.7	3.4	5.2	6.9	8.7
19	.193	.39	.58	.77	.97	.16	.35	.54	.74	1.6	3.1	4.6	6.2	7.8
19 20	29.190	58.38	87.57	116.76	145.95	175.14	204.33	233.52	262.71	1751.4	3502.7	5254.1	7005.5	8756.9
21	.187	.37	.56	.75	.94	.12	.31	.50	.68	1.2	2.4	3.6	4.8	6.0
22	.184	.37	.55	.74	.92	.10	.29	.47	.66	1.0	2.0	3.0	4.1	5.1
23	.181	.36	.54	.72	.91	.09	.27	.45	.63	0.9	1.7	2.5	3.3	4.2
24	.178	.36	.53	.71	.89	.07	.25	.42	.60	0.7	1.3	1.9	2.6	3.3
19 25	29.175	58.35	87.52	116.70	145.88	175.05	204.22	233.40	262.57	1750.5	3501.0	5251.4	7001.9	8752.4
26	.172	.34	.52	.69	.86	.03	.20	.38	.55	0.3	0.6	0.9	1.2	1.5
27	.169	.34	.51	.68	.85	.01	.18	.35	.52	0.1	500.3	50.4	7000.5	50.6
28	.166	.33	.50	.66	.83	5.00	.16	.33	.49	50.0	499.9	49.8	6999.7	49.7
29	.163	.33	.49	.65	.82	4.98	.14	.30	.47	49.8	9.6	9.3	9.0	8.8
19 30	29.160	58.32	87.48	116.64	145.80	174.96	204.12	233.28	262.44	1749.6	3499.2	5248.8	6998.3	8747.9
31	.157	.31	.47	.63	.79	.94	.10	.26	.41	9.4	8.8	8.3	7.6	7.0
32	.154	.31	.46	.62	.77	.92	.08	.23	.39	9.2	8.5	7.7	6.9	6.1
33	.151	.30	.45	.60	.76	.91	.06	.21	.36	9.1	8.1	7.2	6.1	5.2
34	.148	.30	.44	.59	.74	.89	.04	.18	.33	8.9	7.8	6.6	5.4	4.3
19 35	29.145	58.29	87.43	116.58	145.73	174.87	204.01	233.16	262.30	1748.7	3497.4	5246.1	6994.7	8743.4
36	.142	.28	.43	.57	.71	.85	3.99	.14	.28	8.5	7.0	5.6	4.0	2.5
37	.139	.28	.42	.56	.70	.83	.97	.11	.25	8.3	6.7	5.0	3.3	1.6
38	.136	.27	.41	.54	.68	.82	.95	.09	.22	8.2	6.3	4.5	2.6	40.7
39	.133	.27	.40	.53	.67	.80	.93	.06	.20	8.0	6.0	3.9	1.9	39.8
19 40	29.130	58.26	87.39	116.52	145.65	174.78	203.91	233.04	262.17	1747.8	3495.6	5243.4	6991.2	8738.9
41	.127	.25	.38	.51	.64	.76	.89	3.02	.14	7.6	5.2	2.8	90.5	8.0
42	.124	.25	.37	.50	.62	.74	.87	2.99	.12	7.4	4.9	2.3	89.7	7.1
43	.121	.24	.36	.48	.61	.73	.85	.97	.09	7.3	4.5	1.7	9.0	6.2
44	.118	.24	.35	.47	.59	.71	.83	.94	.06	7.1	4.2	1.2	8.2	5.3
19 45	29.115	58.23	87.34	116.46	145.58	174.69	203.80	232.92	262.03	1746.9	3493.8	5240.6	6987.5	8734.4
46	.112	.22	.34	.45	.56	.67	.78	.90	1.01	6.7	3.4	40.1	6.8	3.5
47	.109	.22	.33	.44	.55	.65	.76	.87	1.98	6.5	3.0	39.5	6.1	2.6
48	.106	.21	.32	.42	.53	.64	.74	.85	.95	6.4	2.7	9.0	5.3	1.7
49	.103	.21	.31	.41	.52	.62	.72	.82	.93	6.2	2.3	8.4	4.6	30.8
19 50	29.100	58.20	87.30	116.40	145.50	174.60	203.70	232.80	261.90	1746.0	3491.9	5237.9	6983.9	8729.9
51	.097	.19	.29	.39	.49	.58	.68	.78	.87	5.8	1.5	7.4	3.2	9.0
52	.094	.19	.28	.38	.47	.56	.66	.75	.84	5.6	1.2	6.8	2.4	8.1
53	.090	.18	.27	.36	.46	.54	.63	.73	.82	5.4	0.8	6.3	1.7	7.1
54	.087	.18	.26	.35	.44	.52	.61	.70	.79	5.2	0.5	5.7	0.9	6.2
19 55	29.084	58.17	87.25	116.34	145.43	174.51	203.59	232.68	261.76	1745.1	3490.1	5235.2	6980.2	8725.3
56	.081	.16	.24	.33	.41	.49	.57	.65	.73	4.9	89.7	4.6	79.5	4.4
57	.078	.16	.24	.32	.40	.47	.55	.63	.70	4.7	9.4	4.1	8.8	3.5
58	.075	.15	.23	.30	.38	.45	.52	.60	.68	4.5	9.0	3.5	8.0	2.5
59	.072	.15	.22	.29	.37	.43	.50	.58	.65	4.3	8.7	3.0	7.3	1.6
19 60	29.069	58.14	87.21	116.28	145.35	174.41	203.48	232.55	261.62	1744.1	3488.3	5232.4	6976.6	8720.7

Lat.	Latitude 19° to 20°—Meridional arcs.						Latitude 19°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 19° 30'		Value of 1'	Continuous sums of minutes from latitude 19° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	° ' "	Meters.	° ' "	Meters.	Meters.
19 00	30.746			1844.77					
1	6	1	30.75	.77	1	1 844.8	0 1	1 754.9	0.1
2	6	2	61.50	.78	2	3 689.5	2	3 509.8	0.3
3	6	3	92.24	.78	3	5 534.3	3	5 264.7	0.7
4	6	4	122.99	.78	4	7 379.1	4	7 019.6	1.3
19 05	30.746	5	153.74	1844.79	5	9 223.9	0 5	8 774.5	2.1
6	6	6	184.49	.79	6	11 068.7	6	10 529.3	3.0
7	7	7	215.24	.79	7	12 913.5	7	12 284.2	4.1
8	7	8	245.98	.80	8	14 758.3	8	14 039.1	5.3
9	7	9	276.73	.80	9	16 603.1	9	15 794.0	6.7
19 10	30.747	10	307.48	1844.80	10	18 447.9	0 10	17 548.9	8.3
11	7	1	338.23	.81	1	20 292.7	15	26 323.4	18.7
12	7	2	368.97	.81	2	22 137.5	20	35 097.8	33.2
13	7	3	399.72	.81	3	23 982.3	25	43 872.3	51.9
14	7	4	430.47	.82	4	25 827.1	30	52 646.7	74.8
19 15	30.747	15	461.22	1844.82	15	27 672.0	0 35	61 421.1	101.8
16	7	6	491.97	.82	6	29 516.8	40	70 195.5	133.0
17	7	7	522.71	.83	7	31 361.6	45	78 969.9	168.3
18	7	8	553.46	.83	8	33 206.4	50	87 744.3	207.7
19	7	9	584.21	.83	9	35 051.3	55	96 518.7	251.4
19 20	30.747	20	614.96	1844.84	20	36 896.1	1 00	105 293.0	299.2
21	7	1	645.71	.84	1	38 741.0	05	114 067.3	351.1
22	7	2	676.45	.84	2	40 585.8	10	122 841.6	407.2
23	7	3	707.20	.85	3	42 430.6	15	131 615.9	467.4
24	8	4	737.95	.85	4	44 275.5	20	140 390.1	531.8
19 25	30.748	25	768.70	1844.85	25	46 120.4	1 25	149 164.3	600.4
26	8	5	799.45	.86	5	47 965.2	30	157 938.5	673.1
27	8	6	830.19	.86	6	49 810.1	35	166 712.6	750.0
28	8	7	860.94	.86	7	51 654.9	40	175 486.7	831.0
29	8	8	891.69	.87	8	53 499.8	45	184 260.7	916.1
19 30	30.748	30	922.44	1844.87	30	55 344.7	1 50	193 034.7	1 005.5
31	8	1	953.18	.87	1	57 189.6	55	201 808.7	1 099.0
32	8	2	983.93	.88	2	59 034.4	2 00	210 583	1 197
33	8	3	1 014.68	.88	3	60 879.3	3 00	315 866	2 692
34	8	4	1 045.43	.89	4	62 724.2	4 00	421 138	4 786
19 35	30.748	35	1 076.18	1844.89	35	64 569.1	5 00	526 397	7 478
36	8	5	1 106.92	.89	5	66 414.0	6 00	631 639	10 768
37	8	6	1 137.67	.90	6	68 258.9	7 00	736 861	14 656
38	8	7	1 168.42	.90	7	70 103.8	8 00	842 059	19 142
39	8	8	1 199.17	.90	8	71 948.7	9 00	947 230	24 226
19 40	30.748	40	1 229.92	1844.91	40	73 793.6	10 00	1 052 369	29 907
41	8	1	1 260.66	.91	1	75 638.5	11 00	1 157 475	36 186
42	9	2	1 291.41	.91	2	77 483.4	12 00	1 262 544	43 061
43	9	3	1 322.16	.92	3	79 328.3	13 00	1 367 572	50 534
44	9	4	1 352.91	.92	4	81 173.3	14 00	1 472 556	58 603
19 45	30.749	45	1 383.66	1844.92	45	83 018.2	15 00	1 577 492	67 268
46	9	5	1 414.40	.93	5	84 863.1	16 00	1 682 377	76 530
47	9	6	1 445.15	.93	6	86 708.0	17 00	1 787 208	86 388
48	9	7	1 475.90	.93	7	88 553.0	18 00	1 891 981	96 841
49	9	8	1 506.65	.94	8	90 397.9	19 00	1 996 693	107 889
19 50	30.749	50	1 537.39	1844.94	50	92 242.8	20 00	2 101 342	119 532
51	9	1	1 568.14	.94	1	94 087.8	21 00	2 205 922	131 770
52	9	2	1 598.89	.95	2	95 932.7	22 00	2 310 430	144 601
53	9	3	1 629.64	.95	3	97 777.7	23 00	2 414 864	158 026
54	9	4	1 660.39	.95	4	99 622.6	24 00	2 519 221	172 044
19 55	30.749	55	1 691.13	1844.96	55	101 467.6	25 00	2 623 495	186 655
56	9	5	1 721.88	.96	5	103 312.6	26 00	2 727 685	201 859
57	9	6	1 752.63	.97	6	105 157.5	27 00	2 831 787	217 654
58	49	7	1 783.38	.97	7	107 002.5	28 00	2 935 798	234 040
59	50	8	1 814.13	.97	8	108 847.5	29 00	3 039 714	251 017
19 60	30.750	60	1 844.87	1844.98	60	110 692.4	30 00	3 143 531	268 585

Latitude 20° to 21°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
20 00	29.069	58.14	87.21	116.28	145.35	174.41	203.48	232.55	261.62	1744.1	3488.3	5232.4	6976.6	8720.7
1	.066	.13	.20	.27	.33	.39	.46	.53	.59	3.9	7.9	1.9	5.9	19.8
2	.063	.13	.19	.25	.32	.37	.44	.50	.57	3.7	7.5	1.3	5.1	8.9
3	.060	.12	.18	.24	.30	.36	.42	.48	.54	3.6	7.2	0.8	4.4	7.9
4	.057	.12	.17	.23	.29	.34	.40	.45	.51	3.4	6.8	30.2	3.6	7.0
20 05	29.054	58.11	87.16	116.21	145.27	174.32	203.37	232.43	261.48	1743.2	3486.4	5229.7	6972.9	8716.1
6	.051	.10	.15	.20	.25	.30	.35	.41	.46	3.0	6.0	9.1	2.2	5.2
7	.048	.10	.14	.19	.24	.28	.33	.38	.43	2.8	5.7	8.6	1.4	4.3
8	.044	.09	.13	.18	.22	.27	.31	.36	.40	2.7	5.3	8.0	70.7	3.3
9	.041	.09	.12	.16	.21	.25	.29	.33	.38	2.5	5.0	7.5	69.9	2.4
20 10	29.038	58.08	87.12	116.15	145.19	174.23	203.27	232.31	261.35	1742.3	3484.6	5226.9	6969.2	8711.5
11	.035	.07	.11	.14	.18	.21	.25	.29	.32	2.1	4.2	6.3	8.5	10.6
12	.032	.07	.10	.13	.16	.19	.23	.26	.29	1.9	3.8	5.8	7.7	09.7
13	.029	.06	.09	.11	.15	.17	.20	.24	.27	1.7	3.5	5.2	7.0	8.7
14	.026	.05	.08	.10	.13	.16	.18	.21	.24	1.6	3.1	4.7	6.2	7.8
20 15	29.023	58.04	87.07	116.09	145.12	174.14	203.16	232.19	261.21	1741.4	3482.7	5224.1	6965.5	8706.9
16	.020	.04	.06	.08	.10	.12	.14	.16	.18	1.2	2.3	3.5	4.8	6.0
17	.017	.03	.05	.07	.09	.10	.12	.14	.15	1.0	2.0	3.0	4.0	5.0
18	.014	.02	.04	.05	.07	.08	.09	.11	.13	0.8	1.7	2.4	3.3	4.1
19	.010	.02	.03	.04	.06	.06	.07	.09	.10	0.6	1.3	1.9	2.5	3.1
20 20	29.007	58.01	87.02	116.03	145.04	174.04	203.05	232.06	261.07	1740.4	3480.9	5221.3	6961.8	8702.2
21	.004	.00	.01	.02	.02	.02	.03	.04	.04	0.2	0.5	0.7	1.0	1.3
22	.001	8.00	7.00	6.00	5.01	4.00	3.01	2.01	1.01	40.0	80.1	20.2	60.3	700.3
23	8.998	7.99	6.99	5.99	4.99	3.99	2.98	1.99	0.99	39.9	79.8	19.6	59.5	699.4
24	.995	.99	.98	.98	.98	.97	.96	.96	.96	9.7	9.4	9.1	8.8	8.4
20 25	28.992	57.98	86.97	115.96	144.96	173.95	202.94	231.94	260.93	1739.5	3479.0	5218.5	6958.0	8697.5
26	.989	.97	.97	.95	.94	.93	.92	.91	.90	9.3	8.6	7.9	7.3	6.6
27	.986	.97	.96	.94	.93	.91	.90	.89	.87	9.1	8.2	7.4	6.5	5.7
28	.982	.96	.95	.93	.91	.90	.87	.86	.85	9.0	7.9	6.8	5.8	4.7
29	.979	.96	.94	.91	.90	.88	.85	.84	.82	8.8	7.5	6.3	5.0	3.8
20 30	28.976	57.95	86.93	115.90	144.88	173.86	202.83	231.81	260.79	1738.6	3477.1	5215.7	6954.3	8692.9
31	.973	.94	.92	.89	.86	.84	.81	.79	.76	8.4	6.7	5.1	3.5	1.9
32	.970	.94	.91	.88	.85	.82	.79	.76	.73	8.2	6.4	4.6	2.8	1.0
33	.967	.93	.90	.86	.83	.80	.76	.74	.70	8.0	6.0	4.0	2.0	90.0
34	.964	.93	.89	.85	.82	.78	.74	.71	.67	7.8	5.7	3.5	1.3	89.1
20 35	28.960	57.92	86.88	115.84	144.80	173.76	202.72	231.69	260.65	1737.6	3475.3	5212.9	6950.5	8688.1
36	.957	.91	.87	.83	.78	.74	.70	.66	.62	7.4	4.9	2.3	49.7	7.2
37	.954	.91	.86	.82	.77	.72	.68	.64	.59	7.2	4.5	1.8	9.0	6.2
38	.951	.90	.85	.80	.75	.71	.65	.61	.56	7.1	4.2	1.2	8.2	5.3
39	.948	.90	.84	.79	.74	.69	.63	.59	.53	6.9	3.8	0.7	7.5	4.3
20 40	28.945	57.89	86.83	115.78	144.72	173.67	202.61	231.56	260.50	1736.7	3473.4	5210.1	6946.7	8683.4
41	.942	.88	.82	.77	.71	.65	.59	.53	.47	6.5	3.0	09.5	5.9	2.5
42	.938	.88	.81	.75	.69	.63	.57	.51	.44	6.3	2.6	8.9	5.2	1.5
43	.935	.87	.81	.74	.68	.61	.54	.48	.42	6.1	2.3	8.4	4.4	80.6
44	.932	.87	.80	.73	.66	.59	.52	.46	.39	5.9	1.9	7.8	3.7	79.6
20 45	28.929	57.86	86.79	115.71	144.65	173.57	202.50	231.43	260.36	1735.7	3471.5	5207.2	6942.9	8678.7
46	.926	.85	.78	.70	.63	.55	.48	.40	.33	5.5	1.1	6.6	2.1	7.7
47	.923	.85	.77	.69	.62	.54	.46	.38	.30	5.4	0.7	6.1	1.4	6.8
48	.919	.84	.76	.68	.60	.52	.43	.35	.28	5.2	0.4	5.5	40.6	5.8
49	.916	.84	.75	.66	.59	.50	.41	.33	.25	5.0	70.0	5.0	39.9	4.9
20 50	28.913	57.83	86.74	115.65	144.57	173.48	202.39	231.30	260.22	1734.8	3469.6	5204.4	6939.1	8673.9
51	.910	.82	.73	.64	.55	.46	.37	.28	.19	4.6	9.2	3.8	8.3	2.9
52	.907	.82	.72	.62	.54	.44	.35	.25	.16	4.4	8.8	3.2	7.6	2.0
53	.903	.81	.71	.61	.52	.42	.32	.23	.13	4.2	8.5	2.7	6.8	1.0
54	.900	.80	.70	.60	.51	.40	.30	.20	.10	4.0	8.1	2.1	6.1	70.1
20 55	28.897	57.79	86.69	115.58	144.49	173.38	202.28	231.18	260.07	1733.8	3467.7	5201.5	6935.3	8669.1
56	.894	.79	.68	.57	.47	.36	.26	.15	.05	3.6	7.3	0.9	4.5	8.1
57	.891	.78	.67	.56	.46	.34	.24	.13	60.02	3.4	6.9	200.3	3.8	7.2
58	.887	.77	.66	.55	.44	.33	.21	.10	59.99	3.3	6.5	199.8	3.1	6.2
59	.884	.77	.65	.53	.43	.31	.19	.08	.96	3.1	6.1	9.2	2.3	5.3
20 60	28.881	57.76	86.64	115.52	144.41	173.29	202.17	231.05	259.93	1732.9	3465.7	5198.6	6931.5	8664.3

Lat.	Latitude 20° to 21°—Meridional arcs.						Latitude 20°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 20° 30'		Value of 1'	Continuous sums of minutes from latitude 20° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
20 00	30.750			1844.98					
1	0	1	30.75	.98	1	1 845.0	0 1	1 744.1	0.1
2	0	2	61.50	.98	2	3 690.0	2	3 488.3	0.3
3	0	3	92.25	.99	3	5 534.9	3	5 232.4	0.8
4	0	4	123.01	.99	4	7 379.9	4	6 976.6	1.4
20 05	30.750	5	153.76	1844.99	5	9 224.9	0 5	8 720.7	2.2
6	0	6	184.51	5.00	6	11 069.9	6	10 464.9	3.1
7	0	7	215.26	.00	7	12 914.9	7	12 209.0	4.3
8	0	8	246.01	.00	8	14 759.9	8	13 953.1	5.6
9	0	9	276.76	.01	9	16 604.9	9	15 697.3	7.0
20 10	30.750	10	307.51	1845.01	10	18 450.0	0 10	17 441.4	8.7
11	0	1	338.27	.01	1	20 295.0	15	26 162.1	19.5
12	0	2	369.02	.02	2	22 140.0	20	34 882.8	34.7
13	0	3	399.77	.02	3	23 985.0	25	43 603.5	54.2
14	0	4	430.52	.02	4	25 830.0	30	52 324.2	78.1
20 15	30.750	15	461.27	1845.03	15	27 675.1	0 35	61 044.9	106.3
16	1	6	492.02	.03	9	29 520.1	40	69 765.6	138.8
17	1	7	522.77	.04	7	31 365.1	45	78 486.2	175.7
18	1	8	553.53	.04	8	33 210.2	50	87 206.9	216.9
19	1	9	584.28	.04	9	35 055.2	55	95 927.5	262.5
20 20	30.751	20	615.03	1845.05	20	36 900.3	1 00	104 648.0	312.3
21	1	1	645.78	.05	1	38 745.3	05	113 368.6	366.6
22	1	2	676.53	.05	2	40 590.4	10	122 089.1	425.1
23	1	3	707.28	.06	3	42 435.4	15	130 809.6	488.0
24	1	4	738.03	.06	4	44 280.5	20	139 530.1	555.3
20 25	30.751	25	768.79	1845.06	25	46 125.5	1 25	148 250.5	626.8
26	1	5	799.54	.07	5	47 970.6	30	156 970.9	702.8
27	1	7	830.29	.07	7	49 815.7	35	165 691.3	783.0
28	1	8	861.04	.07	8	51 660.8	40	174 411.6	867.6
29	1	9	891.79	.08	9	53 505.8	45	183 131.8	956.5
20 30	30.751	30	922.54	1845.08	30	55 350.9	1 50	191 852.1	1 049.8
31	1	1	953.29	.09	1	57 196.0	55	200 572.3	1 147.4
32	1	2	984.04	.09	2	59 041.1	2 00	209 292	1 249
33	2	3	1 014.80	.09	3	60 886.2	3 00	313 929	2 811
34	2	4	1 045.55	.10	4	62 731.3	4 00	418 555	4 997
20 35	30.752	35	1 076.30	1845.10	35	64 576.4	5 00	523 166	7 808
36	2	5	1 107.05	.10	5	66 421.5	6 00	627 758	11 243
37	2	7	1 137.80	.11	7	68 266.6	7 00	732 328	15 302
38	2	8	1 168.55	.11	8	70 111.7	8 00	836 871	19 986
39	2	9	1 199.30	.11	9	71 956.8	9 00	941 385	25 294
20 40	30.752	40	1 230.06	1845.12	40	73 801.9	10 00	1 045 865	31 225
41	2	1	1 260.81	.12	1	75 647.1	11 00	1 150 308	37 780
42	2	2	1 291.56	.12	2	77 492.2	12 00	1 254 710	44 958
43	2	3	1 322.31	.13	3	79 337.3	13 00	1 359 067	52 760
44	2	4	1 353.06	.13	4	81 182.4	14 00	1 463 376	61 184
20 45	30.752	45	1 383.81	1845.14	45	83 027.6	15 00	1 567 633	70 230
46	2	5	1 414.56	.14	5	84 872.7	16 00	1 671 834	79 899
47	2	7	1 445.32	.14	7	86 717.9	17 00	1 775 975	90 190
48	2	8	1 476.07	.15	8	88 563.0	18 00	1 880 054	101 102
49	2	9	1 506.82	.15	9	90 408.2	19 00	1 984 064	112 635
20 50	30.753	50	1 537.57	1845.15	50	92 253.3	20 00	2 088 005	124 789
51	3	1	1 568.32	.16	1	94 098.5	21 00	2 191 871	137 563
52	3	2	1 599.07	.16	2	95 943.6	22 00	2 295 659	150 957
53	3	3	1 629.82	.16	3	97 788.8	23 00	2 399 364	164 970
54	3	4	1 660.58	.17	4	99 634.0	24 00	2 502 985	179 602
20 55	30.753	55	1 691.33	1845.17	55	101 479.1	25 00	2 606 516	194 853
56	3	5	1 722.08	.18	5	103 324.3	26 00	2 709 955	210 721
57	3	7	1 752.83	.18	7	105 169.5	27 00	2 813 297	227 206
58	3	8	1 783.58	.18	8	107 014.7	28 00	2 916 538	244 308
59	3	9	1 814.33	.19	9	108 859.9	29 00	3 019 676	262 026
20 60	30.753	60	1 845.08	1845.19	60	110 705.1	30 00	3 122 706	280 359

Latitude 21° to 22°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
21 00	28.881	57.76	86.64	115.52	144.41	173.29	202.17	231.05	259.93	1732.9	3465.7	5198.6	6931.5	8664.3
1	.878	.75	.63	.51	.39	.27	.15	.02	.90	2.7	5.3	8.0	30.7	3.3
2	.875	.75	.62	.50	.38	.25	.12	1.00	.87	2.5	4.9	7.4	29.9	2.4
3	.871	.74	.61	.48	.36	.23	.10	0.97	.84	2.3	4.6	6.9	9.2	1.4
4	.868	.74	.60	.47	.34	.21	.08	.95	.81	2.1	4.2	6.3	8.4	60.5
21 05	28.865	57.73	86.59	115.46	144.32	173.19	202.05	230.92	259.79	1731.9	3463.8	5195.7	6927.6	8659.5
5	.862	.72	.59	.45	.31	.17	.03	.89	.76	1.7	3.4	5.1	6.8	8.5
6	.859	.72	.58	.44	.29	.15	2.01	.87	.73	1.5	3.0	4.5	6.0	7.6
7	.855	.71	.57	.42	.27	.13	1.99	.84	.70	1.3	2.7	4.0	5.3	6.6
8	.852	.71	.56	.41	.26	.11	.96	.82	.67	1.1	2.3	3.4	4.5	5.7
21 10	28.849	57.70	86.55	115.40	144.24	173.09	201.94	230.79	259.64	1730.9	3461.9	5192.8	6923.7	8654.7
11	.846	.69	.54	.39	.22	.07	.92	.76	.61	0.7	1.5	2.2	2.9	3.7
12	.842	.69	.53	.37	.21	.05	.90	.74	.58	0.5	1.1	1.6	2.1	2.7
13	.839	.68	.52	.36	.19	.04	.87	.71	.55	0.4	0.7	1.1	1.4	1.8
14	.836	.67	.51	.35	.18	.02	.85	.69	.52	0.2	60.3	90.5	20.6	50.8
21 15	28.833	57.66	86.50	115.34	144.16	173.00	201.83	230.66	259.50	1730.0	3459.8	5189.9	6919.8	8649.8
15	.829	.66	.49	.32	.14	2.98	.81	.63	.47	29.8	9.4	9.3	9.0	8.8
16	.826	.65	.48	.31	.13	.96	.79	.61	.44	9.6	9.1	8.7	8.3	7.9
17	.823	.64	.47	.30	.11	.94	.76	.58	.41	9.4	8.7	8.2	7.5	6.9
18	.820	.64	.46	.28	.10	.92	.74	.56	.38	9.2	8.4	7.6	6.8	6.0
21 20	28.817	57.63	86.45	115.27	144.08	172.90	201.72	230.53	259.35	1729.0	3458.0	5187.0	6916.0	8645.0
21	.813	.62	.44	.26	.06	.88	.70	.50	.32	8.8	7.6	6.4	5.2	4.0
22	.810	.62	.43	.24	.05	.86	.67	.48	.29	8.6	7.2	5.8	4.4	3.0
23	.807	.61	.42	.23	.03	.84	.65	.45	.26	8.4	6.8	5.2	3.6	2.1
24	.804	.61	.41	.22	.02	.82	.63	.43	.23	8.2	6.4	4.6	2.8	1.1
21 25	28.800	57.60	86.40	115.21	144.00	172.80	201.60	230.40	259.21	1728.0	3456.0	5184.0	6912.0	8640.1
25	.797	.59	.39	.19	3.98	.78	.58	.37	.18	7.8	5.6	3.4	1.2	39.1
26	.794	.59	.38	.18	.97	.76	.56	.35	.15	7.6	5.2	2.8	10.4	8.1
27	.791	.58	.37	.17	.95	.74	.54	.32	.12	7.4	4.9	2.3	09.7	7.2
28	.787	.58	.36	.15	.94	.72	.51	.30	.09	7.2	4.5	1.7	8.9	6.2
21 30	28.784	57.57	86.35	115.14	143.92	172.70	201.49	230.27	259.06	1727.0	3454.1	5181.1	6908.1	8635.2
31	.781	.56	.34	.13	.90	.68	.47	.24	.03	6.8	3.7	80.5	7.3	4.2
32	.777	.56	.33	.11	.89	.66	.44	.22	9.00	6.6	3.3	79.9	6.5	3.2
33	.774	.55	.32	.10	.87	.64	.42	.19	8.97	6.4	2.9	9.3	5.8	2.2
34	.771	.54	.31	.08	.85	.62	.40	.17	.94	6.2	2.5	8.7	5.0	1.2
21 35	28.767	57.53	86.30	115.07	143.83	172.60	201.37	230.14	258.91	1726.0	3452.1	5178.1	6904.2	8630.2
35	.764	.53	.29	.06	.82	.58	.35	.11	.88	5.8	1.7	7.5	3.4	29.2
36	.761	.52	.28	.04	.80	.56	.33	.09	.85	5.6	1.3	6.9	2.6	8.2
37	.758	.51	.27	.03	.78	.55	.31	.06	.82	5.5	0.9	6.4	1.8	7.3
38	.754	.51	.26	.01	.77	.53	.28	.04	.79	5.3	0.5	5.8	1.0	6.3
21 40	28.751	57.50	86.25	115.00	143.75	172.51	201.26	230.01	258.76	1725.1	3450.1	5175.2	6900.2	8625.3
41	.748	.49	.24	4.99	.73	.49	.24	29.98	.73	4.9	49.7	4.6	899.4	4.3
42	.744	.49	.23	.97	.71	.47	.21	.96	.70	4.7	9.3	4.0	8.6	3.3
43	.741	.48	.22	.96	.69	.45	.19	.93	.67	4.5	8.9	3.4	7.8	2.3
44	.738	.48	.21	.95	.67	.43	.16	.90	.64	4.3	8.5	2.8	7.0	1.3
21 45	28.734	57.47	86.20	114.94	143.66	172.41	201.14	229.87	258.61	1724.1	3448.1	5172.2	6896.2	8620.3
45	.731	.46	.19	.92	.65	.39	.12	.85	.58	3.9	7.7	1.6	5.4	19.3
46	.728	.46	.18	.91	.64	.37	.09	.83	.55	3.7	7.3	1.0	4.6	8.3
47	.724	.45	.17	.90	.62	.35	.07	.79	.52	3.5	6.9	70.4	3.9	7.3
48	.721	.45	.16	.88	.61	.33	.04	.77	.49	3.3	6.5	69.8	3.1	6.3
21 50	28.718	57.44	86.15	114.87	143.59	172.31	201.02	229.74	258.46	1723.1	3446.1	5169.2	6892.3	8615.3
51	.714	.43	.14	.86	.57	.29	1.00	.71	.43	2.9	5.7	8.6	1.5	4.3
52	.711	.43	.13	.84	.56	.27	0.97	.69	.40	2.7	5.3	8.0	90.7	3.3
53	.708	.42	.12	.83	.54	.25	.95	.66	.37	2.5	4.9	7.4	89.9	2.3
54	.704	.41	.11	.82	.52	.23	.93	.64	.34	2.3	4.5	6.8	9.1	1.3
21 55	28.701	57.40	86.10	114.80	143.50	172.21	200.90	229.61	258.31	1722.1	3444.1	5166.2	6888.3	8610.3
55	.698	.40	.09	.79	.49	.19	.88	.58	.28	1.9	3.7	5.6	7.5	09.3
56	.694	.39	.08	.78	.47	.17	.86	.56	.25	1.7	3.3	5.0	6.7	8.3
57	.691	.38	.07	.77	.45	.15	.84	.53	.22	1.5	2.9	4.4	5.9	7.3
58	.688	.38	.06	.75	.44	.13	.81	.51	.19	1.3	2.5	3.8	5.1	6.3
21 60	28.684	57.37	86.05	114.74	143.42	172.11	200.79	229.48	258.16	1721.1	3442.1	5163.2	6884.3	8605.3

Lat.	Latitude 21° to 22°—Meridional arcs.						Latitude 21°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 21° 30'		Value of 1'	Continuous sums of minutes from latitude 21° 00'		Longitude.	X	Y
° ' /	Meters.	''	Meters.	Meters.	'	Meters.	° ' /	Meters.	Meters.
21 00	30.753			1845.19					
1	3	1	30.76	.20	1	1 845.2	0 1	1 732.9	0.1
2	3	2	61.51	.20	2	3 690.4	2	3 465.7	0.4
3	3	3	92.27	.20	3	5 535.6	3	5 198.6	0.8
4	3	4	123.02	.21	4	7 380.8	4	6 931.5	1.4
21 05	30.753	5	153.78	1845.21	5	9 226.0	0 5	8 664.3	2.2
6	4	6	184.53	.21	6	11 071.2	6	10 397.2	3.2
7	4	7	215.29	.22	7	12 916.4	7	12 130.0	4.4
8	4	8	246.04	.22	8	14 761.7	8	13 862.9	5.8
9	4	9	276.80	.23	9	16 606.9	9	15 595.8	7.3
21 10	30.754	10	307.55	1845.23	10	18 452.1	0 10	17 328.6	9.0
11	4	1	338.31	.23	1	20 297.3	15	25 993.0	20.3
12	4	2	369.06	.24	2	22 142.6	20	34 657.3	36.1
13	4	3	399.82	.24	3	23 987.8	25	43 321.6	56.4
14	4	4	430.57	.24	4	25 833.1	30	51 985.9	81.3
21 15	30.754	15	461.33	1845.25	15	27 678.3	0 35	60 650.2	110.7
16	4	6	492.08	.25	6	29 523.6	40	69 314.5	144.5
17	4	7	522.84	.25	7	31 368.8	45	77 978.7	182.9
18	4	8	553.59	.26	8	33 214.1	50	86 643.0	225.8
19	4	9	584.35	.26	9	35 059.3	55	95 307.2	273.2
21 20	30.754	20	615.10	1845.27	20	36 904.6	1 00	103 971.3	325.2
21	4	1	645.86	.27	1	38 749.9	05	112 635.5	381.6
22	5	2	676.61	.27	2	40 595.1	10	121 299.6	442.5
23	5	3	707.37	.28	3	42 440.4	15	129 963.7	508.0
24	5	4	738.12	.28	4	44 285.7	20	138 627.7	578.0
21 25	30.755	25	768.88	1845.28	25	46 131.0	1 25	147 291.8	652.5
26	5	6	799.63	.29	6	47 976.3	30	155 955.7	731.6
27	5	7	830.39	.29	7	49 821.5	35	164 619.7	815.1
28	5	8	861.14	.30	8	51 666.8	40	173 283.6	903.2
29	5	9	891.90	.30	9	53 512.1	45	181 947.4	995.8
21 30	30.755	30	922.65	1845.30	30	55 357.4	1 50	190 611.2	1 092.9
31	5	1	953.41	.31	1	57 202.7	55	199 274.9	1 194.5
32	5	2	984.16	.31	2	59 048.0	2 00	207 939	1 301
33	5	3	1 014.92	.31	3	60 893.4	3 00	311 898	2 926
34	5	4	1 045.67	.32	4	62 738.7	4 00	415 845	5 202
21 35	30.755	35	1 076.43	1845.32	35	64 584.0	5 00	519 775	8 128
36	5	6	1 107.18	.33	6	66 429.3	6 00	623 686	11 704
37	5	7	1 137.94	.33	7	68 274.6	7 00	727 572	15 930
38	6	8	1 168.69	.33	8	70 120.0	8 00	831 429	20 806
39	6	9	1 199.45	.34	9	71 965.3	9 00	935 254	26 331
21 40	30.756	40	1 230.20	1845.34	40	73 810.6	10 00	1 039 042	32 505
41	6	1	1 260.96	.34	1	75 656.0	11 00	1 142 790	39 328
42	6	2	1 291.71	.35	2	77 501.3	12 00	1 246 493	46 801
43	6	3	1 322.47	.35	3	79 346.7	13 00	1 350 147	54 922
44	6	4	1 353.22	.36	4	81 192.0	14 00	1 453 749	63 690
21 45	30.756	45	1 383.98	1845.36	45	83 037.4	15 00	1 557 294	73 107
46	6	6	1 414.73	.36	6	84 882.8	16 00	1 660 777	83 171
47	6	7	1 445.49	.37	7	86 728.1	17 00	1 764 195	93 882
48	6	8	1 476.24	.37	8	88 573.5	18 00	1 867 545	105 240
49	6	9	1 507.00	.37	9	90 418.9	19 00	1 970 822	117 244
21 50	30.756	50	1 537.75	1845.38	50	92 264.2	20 00	2 074 021	129 893
51	6	1	1 568.51	.38	1	94 109.6	21 00	2 177 139	143 188
52	6	2	1 599.26	.39	2	95 955.0	22 00	2 280 173	157 128
53	6	3	1 630.02	.39	3	97 800.4	23 00	2 383 117	171 712
54	7	4	1 660.77	.39	4	99 645.8	24 00	2 485 967	186 939
21 55	30.757	55	1 691.53	1845.40	55	101 491.2	25 00	2 588 720	202 809
56	7	6	1 722.28	.40	6	103 336.6	26 00	2 691 373	219 322
57	7	7	1 753.04	.40	7	105 182.0	27 00	2 793 920	236 476
58	7	8	1 783.79	.41	8	107 027.4	28 00	2 896 358	254 272
59	7	9	1 814.55	.41	9	108 872.8	29 00	2 998 682	272 708
21 60	30.757	60	1 845.30	1845.42	60	110 718.2	30 00	3 100 889	291 784

Latitude 22° to 23°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
22 00	28.684	57.37	86.05	114.74	143.42	172.11	200.79	229.48	258.16	1721.1	3442.1	5163.2	6884.3	8605.3
01	.681	.36	.04	.73	.40	.09	.77	.45	.13	0.9	1.7	2.6	3.5	4.3
02	.678	.36	.03	.71	.39	.07	.74	.43	.10	0.7	1.3	2.0	2.7	3.3
03	.674	.35	.02	.70	.37	.05	.72	.40	.07	0.5	0.9	1.4	1.8	2.3
04	.671	.34	.01	.68	.35	.03	.69	.37	.04	0.3	0.5	0.8	1.0	1.3
22 05	28.668	57.33	86.00	114.67	143.33	172.01	200.67	229.35	258.01	1720.1	3440.1	5160.2	6880.2	8600.3
06	.664	.33	5.99	.66	.32	1.99	.65	.32	7.98	19.9	39.7	59.6	79.4	99.3
07	.661	.32	.98	.64	.30	.97	.62	.29	.95	9.7	9.3	9.0	8.6	8.3
08	.657	.31	.97	.63	.28	.94	.60	.26	.92	9.4	8.9	8.3	7.8	7.2
09	.654	.31	.96	.61	.27	.92	.57	.24	.89	9.2	8.5	7.7	7.0	6.2
22 10	28.651	57.30	85.95	114.60	143.25	171.90	200.55	229.21	257.86	1719.0	3438.1	5157.1	6876.2	8595.2
11	.647	.29	.94	.59	.23	.88	.53	.18	.83	8.8	7.7	6.5	5.4	4.2
12	.644	.29	.93	.57	.22	.86	.50	.16	.80	8.6	7.3	5.9	4.6	3.2
13	.641	.28	.92	.56	.20	.84	.48	.13	.77	8.4	6.9	5.3	3.7	2.2
14	.637	.27	.91	.55	.18	.82	.46	.10	.74	8.2	6.5	4.7	2.9	1.2
22 15	28.634	57.26	85.90	114.54	143.16	171.80	200.43	229.07	257.70	1718.0	3436.1	5154.1	6872.1	8590.1
16	.630	.26	.89	.52	.15	.78	.41	.05	.67	7.8	5.7	3.5	1.3	89.1
17	.627	.25	.88	.51	.13	.76	.39	9.02	.64	7.6	5.3	2.9	70.5	8.1
18	.624	.24	.87	.50	.11	.74	.37	8.99	.61	7.4	4.8	2.2	69.7	7.1
19	.620	.24	.86	.48	.10	.72	.34	.97	.58	7.2	4.4	1.6	8.9	6.1
22 20	28.617	57.23	85.85	114.47	143.08	171.70	200.32	228.94	257.55	1717.0	3434.0	5151.0	6868.1	8585.1
21	.613	.22	.84	.46	.06	.68	.30	.91	.52	6.8	3.6	50.4	7.3	4.0
22	.610	.22	.83	.44	.05	.66	.27	.88	.49	6.6	3.2	49.8	6.5	3.0
23	.607	.21	.82	.43	.03	.64	.25	.86	.46	6.4	2.8	9.2	5.6	2.0
24	.603	.21	.81	.41	.01	.62	.22	.83	.43	6.2	2.4	8.6	4.8	81.0
22 25	28.600	57.20	85.80	114.40	143.00	171.60	200.20	228.80	257.40	1716.0	3432.0	5148.0	6864.0	8579.9
26	.596	.19	.79	.39	2.98	.58	.18	.77	.37	5.8	1.6	7.4	3.2	8.9
27	.593	.19	.78	.37	.96	.56	.15	.74	.34	5.6	1.2	6.8	2.4	7.9
28	.590	.18	.77	.36	.94	.54	.13	.72	.31	5.4	0.7	6.1	1.5	6.9
29	.586	.18	.76	.34	.93	.52	.10	.69	.28	5.2	30.3	5.5	60.7	5.9
22 30	28.583	57.17	85.75	114.33	142.91	171.50	200.08	228.66	257.25	1715.0	3429.9	5144.9	6859.9	8574.8
31	.579	.16	.74	.32	.89	.48	.06	.63	.22	4.8	9.5	4.3	9.1	3.8
32	.576	.16	.73	.30	.88	.46	.03	.60	.19	4.6	9.1	3.7	8.3	2.7
33	.572	.15	.72	.29	.86	.43	.86	.58	.16	4.3	8.7	3.0	7.4	1.7
34	.569	.14	.71	.27	.84	.41	199.98	.55	.13	4.1	8.3	2.4	6.6	70.7
22 35	28.566	57.13	85.70	114.26	142.82	171.39	199.96	228.52	257.09	1713.9	3427.9	5141.8	6855.8	8569.7
36	.562	.13	.69	.25	.81	.37	.94	.49	.06	3.7	7.5	1.2	5.0	8.6
37	.559	.12	.68	.23	.79	.35	.91	.46	.03	3.5	7.1	40.6	4.1	7.6
38	.555	.11	.67	.22	.77	.33	.89	.44	7.00	3.3	6.6	39.9	3.3	6.6
39	.552	.11	.66	.20	.76	.31	.86	.41	6.97	3.1	6.2	9.3	2.4	5.6
22 40	28.548	57.10	85.65	114.19	142.74	171.29	199.84	228.38	256.94	1712.9	3425.8	5138.7	6851.6	8564.5
41	.545	.09	.64	.18	.72	.27	.82	.35	.91	2.7	5.4	8.1	0.8	3.5
42	.541	.09	.62	.16	.71	.25	.79	.33	.88	2.5	5.0	7.5	50.0	2.4
43	.538	.08	.61	.15	.69	.23	.77	.30	.84	2.3	4.5	6.8	49.1	1.4
44	.535	.07	.60	.14	.67	.21	.74	.27	.81	2.1	4.1	6.2	8.3	60.4
22 45	28.531	57.06	85.59	114.12	142.66	171.19	199.72	228.25	256.78	1711.9	3423.7	5135.6	6847.5	8559.3
46	.528	.06	.58	.11	.64	.17	.70	.22	.75	1.7	3.3	5.0	6.7	8.3
47	.524	.05	.57	.10	.62	.15	.67	.19	.72	1.5	2.9	4.4	5.8	7.3
48	.521	.04	.56	.09	.60	.12	.65	.16	.68	1.2	2.5	3.7	5.0	6.2
49	.517	.04	.55	.07	.59	.10	.62	.14	.65	1.0	2.1	3.1	4.1	5.2
22 50	28.514	57.03	85.54	114.06	142.57	171.08	199.60	228.11	256.62	1710.8	3421.7	5132.5	6843.3	8554.1
51	.510	.02	.53	.05	.55	.06	.58	.08	.59	0.6	1.3	1.9	2.5	3.1
52	.507	.02	.52	.03	.53	.04	.55	.05	.56	0.4	0.9	1.2	1.6	2.0
53	.503	.01	.51	.02	.52	.02	.53	.03	.53	0.2	0.4	30.6	40.8	1.0
54	.500	57.00	.50	4.00	.50	1.00	.50	8.00	.50	10.0	20.0	29.9	39.9	50.0
22 55	28.496	56.99	85.49	113.99	142.48	170.98	199.48	227.97	256.46	1709.8	3419.6	5129.3	6839.1	8548.9
56	.493	.99	.48	.98	.46	.96	.45	.94	.43	9.6	9.2	8.7	8.3	7.9
57	.489	.98	.47	.96	.44	.94	.43	.91	.40	9.4	8.8	8.1	7.4	6.8
58	.486	.97	.46	.95	.43	.92	.40	.89	.37	9.2	8.3	7.4	6.5	5.8
59	.482	.97	.45	.93	.41	.89	.38	.86	.34	8.9	7.9	6.8	5.7	4.7
22 60	28.479	56.96	85.44	113.92	142.39	170.87	199.35	227.83	256.31	1708.7	3417.5	5126.2	6834.9	8543.7

Lat.	Latitude 22° to 23°—Meridional arcs.						Latitude 22°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 22° 30'		Value of 1'	Continuous sums of minutes from latitude 22° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
22 00	30.757			1845.42					
1	7	1	30.76	.42	1	1 845.4	0 1	1 721.1	0.1
2	7	2	61.52	.42	2	3 690.8	2	3 442.2	0.4
3	7	3	92.28	.43	3	5 536.3	3	5 163.2	0.8
4	7	4	123.04	.43	4	7 381.7	4	6 884.3	1.5
22 05	30.757	5	153.79	1845.44	5	9 227.1	0 5	8 605.4	2.3
6	7	6	184.55	.44	6	11 072.6	6	10 326.5	3.4
7	7	7	215.31	.44	7	12 918.0	7	12 047.5	4.6
8	7	8	246.07	.45	8	14 763.4	8	13 768.6	6.0
9	7	9	276.83	.45	9	16 608.9	9	15 489.7	7.6
22 10	30.758	10	307.59	1845.45	10	18 454.3	0 10	17 210.7	9.4
11	8	1	338.35	.46	1	20 299.8	15	25 816.0	21.1
12	8	2	369.11	.46	2	22 145.3	20	34 421.3	37.5
13	8	3	399.86	.47	3	23 990.7	25	43 026.6	58.6
14	8	4	430.62	.47	4	25 836.2	30	51 631.8	84.4
22 15	30.758	15	461.38	1845.47	15	27 681.7	0 35	60 237.1	114.9
16	8	6	492.14	.48	6	29 527.1	40	68 842.3	150.0
17	8	7	522.90	.48	7	31 372.6	45	77 447.6	189.9
18	8	8	553.66	.48	8	33 218.1	50	86 052.8	234.4
19	8	9	584.42	.49	9	35 063.6	55	94 657.9	283.7
22 20	30.758	20	615.18	1845.49	20	36 909.1	1 00	103 263.1	337.6
21	8	1	645.94	.50	1	38 754.6	05	111 868.2	396.2
22	8	2	676.69	.50	2	40 600.1	10	120 473.3	459.5
23	8	3	707.45	.50	3	42 445.6	15	129 078.3	527.5
24	8	4	738.21	.51	4	44 291.1	20	137 683.3	600.1
22 25	30.759	25	768.97	1845.51	25	46 136.6	1 25	146 288.3	677.5
26	9	6	799.73	.52	6	47 982.1	30	154 893.2	759.5
27	9	7	830.49	.52	7	49 827.6	35	163 498.1	846.3
28	9	8	861.25	.52	8	51 673.1	40	172 102.9	937.7
29	9	9	892.01	.53	9	53 518.7	45	180 707.7	1 033.8
22 30	30.759	30	922.77	1845.53	30	55 364.2	1 50	189 312.4	1 134.6
31	9	1	953.52	.53	1	57 209.7	55	197 917.1	1 240.1
32	9	2	984.28	.54	2	59 055.3	2 00	206 522	1 350
33	9	3	1 015.04	.54	3	60 900.8	3 00	309 772	3 037
34	9	4	1 045.80	.55	4	62 746.3	4 00	413 008	5 400
22 35	30.759	35	1 076.56	1845.55	35	64 591.9	5 00	516 227	8 438
36	9	6	1 107.32	.55	6	66 437.4	6 00	619 424	12 151
37	9	7	1 138.08	.56	7	68 283.0	7 00	722 595	16 538
38	9	8	1 168.84	.56	8	70 128.6	8 00	825 734	21 600
39	9	9	1 199.59	.57	9	71 974.1	9 00	928 838	27 336
22 40	30.759	40	1 230.35	1845.57	40	73 819.7	10 00	1 031 903	33 746
41	60	1	1 261.11	.57	1	75 665.3	11 00	1 134 923	40 829
42	0	2	1 291.87	.58	2	77 510.8	12 00	1 237 895	48 586
43	0	3	1 322.63	.58	3	79 356.4	13 00	1 340 814	57 016
44	0	4	1 353.39	.58	4	81 202.0	14 00	1 443 675	66 119
22 45	30.760	45	1 384.15	1845.59	45	83 047.6	15 00	1 546 475	75 894
46	0	6	1 414.91	.59	6	84 893.2	16 00	1 649 209	86 341
47	0	7	1 445.67	.60	7	86 738.8	17 00	1 751 873	97 459
48	0	8	1 476.42	.60	8	88 584.4	18 00	1 854 461	109 248
49	0	9	1 507.18	.60	9	90 430.0	19 00	1 956 970	121 708
22 50	30.760	50	1 537.94	1845.61	50	92 275.6	20 00	2 059 396	134 838
51	0	1	1 568.70	.61	1	94 121.2	21 00	2 161 733	148 637
52	0	2	1 599.46	.62	2	95 966.8	22 00	2 263 978	163 105
53	0	3	1 630.22	.62	3	97 812.4	23 00	2 366 126	178 241
54	0	4	1 660.98	.62	4	99 658.0	24 00	2 468 174	194 045
22 55	30.760	55	1 691.74	1845.63	55	101 503.7	25 00	2 570 116	210 515
56	1	6	1 722.50	.63	6	103 349.3	26 00	2 671 947	227 652
57	1	7	1 753.25	.64	7	105 194.9	27 00	2 773 664	245 454
58	1	8	1 784.01	.64	8	107 040.6	28 00	2 875 264	263 921
59	1	9	1 814.77	.64	9	108 886.2	29 00	2 976 740	283 051
22 60	30.761	60	1 845.53	1845.65	60	110 731.8	30 00	3 078 089	302 845

Latitude 23° to 24°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
23 00	28.479	56.96	85.44	113.92	142.39	170.87	199.35	227.83	256.31	1708.7	3417.5	5126.2	6834.9	8543.7
1	.475	.95	.43	.91	.37	.85	.33	.80	.28	8.5	7.1	5.6	4.1	2.6
2	.472	.95	.42	.89	.36	.83	.30	.77	.25	8.3	6.7	5.0	3.2	1.6
3	.468	.94	.41	.88	.34	.81	.28	.75	.22	8.1	6.2	4.3	2.4	1.0
4	.465	.93	.40	.86	.32	.79	.25	.72	.19	7.9	5.8	3.7	1.5	0.5
23 05	28.461	56.92	85.38	113.85	142.31	170.77	199.23	227.69	256.15	1707.7	3415.4	5123.1	6830.7	8538.4
6	.458	.92	.37	.84	.29	.75	.21	.66	.12	7.5	5.0	2.5	29.9	7.4
7	.454	.91	.36	.82	.27	.73	.18	.63	.09	7.3	4.6	1.8	9.0	6.3
8	.451	.90	.35	.81	.25	.71	.16	.61	.06	7.1	4.1	1.2	8.2	5.3
9	.447	.90	.34	.79	.24	.68	.13	.58	.03	6.8	3.7	20.5	7.3	4.2
23 10	28.444	56.89	85.33	113.78	142.22	170.66	199.11	227.55	256.00	1706.6	3413.3	5119.9	6826.5	8533.2
11	.440	.88	.32	.77	.20	.64	.09	.52	5.97	6.4	2.9	9.3	5.7	2.1
12	.437	.88	.31	.75	.18	.62	.06	.49	.94	6.2	2.5	8.6	4.8	1.1
13	.433	.87	.30	.74	.17	.60	.04	.47	.90	6.0	2.0	8.0	4.0	30.0
14	.430	.86	.29	.72	.15	.58	9.01	.44	.87	5.8	1.6	7.3	3.1	28.9
23 15	28.426	56.85	85.28	113.71	142.13	170.56	198.99	227.41	255.84	1705.6	3411.2	5116.7	6822.3	8527.9
16	.423	.85	.27	.69	.11	.54	.96	.38	.81	5.4	0.8	6.1	1.5	6.8
17	.419	.84	.26	.68	.09	.52	.94	.35	.78	5.2	10.3	5.4	20.6	5.8
18	.416	.83	.25	.66	.08	.49	.91	.33	.74	4.9	09.9	4.8	19.8	4.7
19	.412	.83	.24	.65	.06	.47	.89	.30	.71	4.7	9.4	4.1	8.9	3.6
23 20	28.409	56.82	85.23	113.63	142.04	170.45	198.86	227.27	255.68	1704.5	3409.0	5113.5	6818.1	8522.6
21	.405	.81	.22	.62	.02	.43	.84	.24	.65	4.3	8.6	2.9	7.2	1.5
22	.401	.81	.20	.60	2.01	.41	.81	.21	.62	4.1	8.2	2.2	6.4	20.4
23	.398	.80	.19	.59	1.99	.39	.79	.18	.58	3.9	7.7	1.6	5.5	19.4
24	.394	.79	.18	.57	.97	.37	.76	.15	.55	3.7	7.3	0.9	4.7	8.3
23 25	28.391	56.78	85.17	113.56	141.96	170.34	198.74	227.13	255.52	1703.4	3406.9	5110.3	6813.8	8517.2
26	.387	.78	.16	.55	.94	.32	.71	.10	.49	3.2	6.5	09.7	2.9	6.2
27	.384	.77	.15	.53	.92	.30	.69	.07	.46	3.0	6.1	9.0	2.1	5.1
28	.380	.76	.14	.52	.90	.28	.66	.04	.42	2.8	5.6	8.4	1.2	4.0
29	.377	.76	.13	.50	.89	.26	.64	7.01	.39	2.6	5.2	7.7	10.4	3.0
23 30	28.373	56.75	85.12	113.49	141.87	170.24	198.61	226.98	255.36	1702.4	3404.8	5107.1	6809.5	8511.9
31	.369	.74	.11	.48	.85	.22	.59	.95	.33	2.2	4.4	6.5	8.6	10.8
32	.366	.73	.10	.46	.83	.20	.56	.92	.29	2.0	3.9	5.8	7.8	09.8
33	.362	.73	.09	.45	.82	.17	.54	.90	.26	1.7	3.5	5.2	6.9	8.7
34	.359	.72	.08	.43	.80	.15	.51	.87	.23	1.5	3.0	4.5	6.1	7.6
23 35	28.355	56.71	85.06	113.42	141.78	170.13	198.49	226.84	255.19	1701.3	3402.6	5103.9	6805.2	8506.5
36	.352	.70	.05	.41	.76	.11	.46	.81	.16	1.1	2.2	3.3	4.3	5.5
37	.348	.69	.04	.39	.74	.09	.44	.78	.13	0.9	1.8	2.6	3.5	4.4
38	.344	.69	.03	.38	.73	.06	.41	.76	.10	0.6	1.3	2.0	2.6	3.3
39	.341	.68	.02	.36	.71	.04	.39	.73	.06	0.4	0.9	1.3	1.8	2.2
23 40	28.337	56.67	85.01	113.35	141.69	170.02	198.36	226.70	255.03	1700.2	3400.5	5100.7	6800.9	8501.2
41	.334	.66	5.00	.34	.67	70.00	.34	.67	5.00	700.0	400.1	100.0	800.0	500.1
42	.330	.66	4.99	.32	.65	69.98	.31	.64	4.97	699.8	399.6	5099.4	799.2	499.0
43	.326	.65	.98	.31	.64	.96	.29	.61	.93	9.6	9.2	8.7	8.3	7.9
44	.323	.64	.97	.29	.62	.94	.26	.58	.90	9.4	8.7	8.1	7.5	6.8
23 45	28.319	56.63	84.96	113.28	141.60	169.92	198.24	226.56	254.87	1699.2	3398.3	5097.4	6796.6	8495.8
46	.316	.63	.95	.26	.58	.89	.21	.53	.84	8.9	7.9	6.8	5.7	4.7
47	.312	.62	.94	.25	.56	.87	.19	.50	.81	8.7	7.4	6.1	4.9	3.6
48	.308	.61	.93	.23	.55	.85	.16	.47	.77	8.5	7.0	5.5	4.0	2.5
49	.305	.61	.91	.22	.53	.83	.14	.44	.74	8.3	6.5	4.8	3.2	1.4
23 50	28.301	56.60	84.90	113.20	141.51	169.81	198.11	226.41	254.71	1698.1	3396.1	5094.2	6792.3	8490.4
51	.298	.59	.89	.19	.49	.79	.08	.38	.68	7.9	5.7	3.5	1.4	89.3
52	.294	.59	.88	.17	.47	.77	.06	.35	.64	7.7	5.3	2.9	90.5	8.2
53	.290	.58	.87	.16	.45	.74	.03	.32	.61	7.4	4.8	2.2	89.7	7.1
54	.287	.57	.86	.14	.43	.72	8.01	.29	.58	7.2	4.4	1.6	8.8	6.0
23 55	28.283	56.56	84.85	113.13	141.42	169.70	197.98	226.27	254.54	1697.0	3394.0	5090.9	6787.9	8484.9
56	.279	.56	.84	.12	.40	.68	.95	.24	.51	6.8	3.6	90.3	7.0	3.8
57	.276	.55	.83	.10	.38	.66	.93	.21	.48	6.6	3.1	89.6	6.2	2.7
58	.272	.54	.82	.09	.36	.63	.90	.18	.45	6.3	2.7	9.0	5.3	1.6
59	.268	.54	.80	.07	.34	.61	.88	.15	.41	6.1	2.2	8.3	4.5	80.5
23 60	28.265	56.53	84.79	113.06	141.32	169.59	197.85	226.12	254.38	1695.9	3391.8	5087.7	6783.6	8479.5

Lat.	Latitude 23° to 24°—Meridional arcs.						Latitude 23°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 23° 30'		Value of 1'	Continuous sums of minutes from latitude 23° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
23 00	30.761			1845.65					
1	1	1	30.76	.65	1	1 845.6	0 1	1 708.7	0.1
2	1	2	61.53	.66	2	3 691.3	2	3 417.5	0.4
3	1	3	92.29	.66	3	5 537.0	3	5 126.2	0.9
4	1	4	123.05	.66	4	7 382.6	4	6 835.0	1.6
23 05	30.761	5	153.81	1845.67	5	9 228.3	0 5	8 543.7	2.4
6	1	6	184.58	.67	6	11 073.9	6	10 252.4	3.5
7	1	7	215.34	.67	7	12 919.6	7	11 961.2	4.8
8	1	8	246.10	.68	8	14 765.3	8	13 669.9	6.2
9	1	9	276.86	.68	9	16 611.0	9	15 378.6	7.9
23 10	30.761	10	307.63	1845.69	10	18 456.7	0 10	17 087.4	9.7
11	2	1	338.39	.69	1	20 302.3	15	25 631.0	21.8
12	2	2	369.15	.69	2	22 148.0	20	34 174.7	38.8
13	2	3	399.92	.70	3	23 993.7	25	42 718.4	60.7
14	2	4	430.68	.70	4	25 839.4	30	51 262.0	87.4
23 15	30.762	15	461.44	1845.71	15	27 685.1	0 35	59 805.7	118.9
16	2	6	492.20	.71	6	29 530.8	40	68 349.3	155.4
17	2	7	522.97	.71	7	31 376.6	45	76 892.8	196.6
18	2	8	553.73	.72	8	33 222.3	50	85 436.4	242.8
19	2	9	584.49	.72	9	35 068.0	55	93 979.9	293.7
23 20	30.762	20	615.26	1845.73	20	36 913.7	1 00	102 523.4	349.6
21	2	1	646.02	.73	1	38 759.4	05	111 066.9	410.3
22	2	2	676.78	.73	2	40 605.2	10	119 610.3	475.8
23	2	3	707.54	.74	3	42 450.9	15	128 153.7	546.2
24	2	4	738.31	.74	4	44 296.7	20	136 697.1	621.5
23 25	30.762	25	769.07	1845.75	25	46 142.4	1 25	145 240.4	701.6
26	2	6	799.83	.75	6	47 988.1	30	153 783.6	786.6
27	3	7	830.59	.75	7	49 833.9	35	162 326.8	876.4
28	3	8	861.36	.76	8	51 679.7	40	170 870.0	971.1
29	3	9	892.12	.76	9	53 525.4	45	179 413.1	1 070.6
23 30	30.763	30	922.88	1845.77	30	55 371.2	1 50	187 956.1	1 175.0
31	3	1	953.65	.77	1	57 216.9	55	196 499.1	1 284.2
32	3	2	984.41	.77	2	59 062.7	2 00	205 042	1 398
33	3	3	1 015.17	.78	3	60 908.5	3 00	307 551	3 146
34	3	4	1 045.93	.78	4	62 754.3	4 00	410 046	5 593
23 35	30.763	35	1 076.70	1845.79	35	64 600.1	5 00	512 522	8 739
36	3	6	1 107.46	.79	6	66 445.8	6 00	614 974	12 583
37	3	7	1 138.22	.79	7	68 291.6	7 00	717 397	17 126
38	3	8	1 168.99	.80	8	70 137.4	8 00	819 787	22 368
39	3	9	1 199.75	.80	9	71 983.2	9 00	922 139	28 307
23 40	30.763	40	1 230.51	1845.81	40	73 829.0	10 00	1 024 448	34 945
41	3	1	1 261.27	.81	1	75 674.8	11 00	1 126 709	42 280
42	4	2	1 292.04	.81	2	77 520.7	12 00	1 228 918	50 312
43	4	3	1 322.80	.82	3	79 366.5	13 00	1 331 070	59 041
44	4	4	1 353.56	.82	4	81 212.3	14 00	1 433 160	68 466
23 45	30.764	45	1 384.32	1845.83	45	83 058.1	15 00	1 535 183	78 588
46	4	6	1 415.09	.83	6	84 903.9	16 00	1 637 135	89 405
47	4	7	1 445.85	.83	7	86 749.8	17 00	1 739 011	100 917
48	4	8	1 476.61	.84	8	88 595.6	18 00	1 840 805	113 123
49	4	9	1 507.38	.84	9	90 441.5	19 00	1 942 514	126 023
23 50	30.764	50	1 538.14	1845.85	50	92 287.3	20 00	2 044 133	139 617
51	4	1	1 568.90	.85	1	94 133.2	21 00	2 145 657	153 903
52	4	2	1 599.66	.85	2	95 979.0	22 00	2 247 081	168 882
53	4	3	1 630.43	.86	3	97 824.9	23 00	2 348 400	184 552
54	4	4	1 661.19	.86	4	99 670.7	24 00	2 449 611	200 911
23 55	30.764	55	1 691.95	1845.87	55	101 516.6	25 00	2 550 707	217 960
56	5	6	1 722.72	.87	6	103 362.4	26 00	2 651 685	235 700
57	5	7	1 753.48	.87	7	105 208.3	27 00	2 752 540	254 127
58	5	8	1 784.24	.88	8	107 054.2	28 00	2 853 266	273 242
59	5	9	1 815.00	.88	9	108 900.1	29 00	2 953 859	293 043
23 60	30.765	60	1 845.77	1845.89	60	110 746.0	30 00	3 054 316	313 530

Latitude 24° to 25°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
24 00	28.265	56.53	84.79	113.06	141.32	169.59	197.85	226.12	254.38	1695.9	3391.8	5087.7	6783.6	8479.5
1	.261	.52	.78	.05	.30	.57	.83	.09	.35	5.7	1.4	7.0	2.7	8.4
2	.258	.52	.77	.03	.28	.55	.80	.06	.32	5.5	0.9	6.4	1.8	7.3
3	.254	.51	.76	.02	.27	.52	.78	.03	.28	5.2	0.5	5.7	1.0	6.2
4	.250	.50	.75	3.00	.25	.50	.75	6.00	.25	5.0	90.0	5.1	80.1	5.1
24 05	28.247	56.50	84.74	112.99	141.23	169.48	197.73	225.98	254.22	1694.8	3389.6	5084.4	6779.2	8474.0
6	.243	.49	.73	.97	.21	.46	.70	.95	.19	4.6	9.2	3.7	8.3	2.9
7	.239	.48	.72	.96	.19	.44	.68	.92	.16	4.4	8.7	3.1	7.4	1.8
8	.236	.47	.71	.94	.18	.41	.65	.89	.12	4.1	8.3	2.4	6.6	70.7
9	.232	.47	.70	.93	.16	.39	.63	.86	.09	3.9	7.8	1.8	5.7	69.6
24 10	28.228	56.46	84.69	112.91	141.14	169.37	197.60	225.83	254.06	1693.7	3387.4	5081.1	6774.8	8468.5
11	.225	.45	.67	.90	.12	.35	.57	.80	4.03	3.5	7.0	80.4	3.9	7.4
12	.221	.44	.66	.88	.10	.33	.55	.77	3.99	3.3	6.5	79.8	3.0	6.3
13	.217	.44	.65	.87	.09	.30	.52	.74	.96	3.0	6.1	9.1	2.2	5.2
14	.214	.43	.64	.85	.07	.28	.50	.71	.92	2.8	5.6	8.5	1.3	4.1
24 15	28.210	56.42	84.63	112.84	141.05	169.26	197.47	225.68	253.89	1692.6	3385.2	5077.8	6770.4	8463.0
16	.206	.41	.62	.83	.03	.24	.44	.65	.86	2.4	4.8	7.1	69.5	1.9
17	.203	.40	.61	.81	.01	.22	.42	.62	.82	2.2	4.3	6.5	8.6	60.8
18	.199	.40	.60	.80	1.00	.19	.39	.59	.79	1.9	3.9	5.8	7.8	59.7
19	.195	.39	.59	.78	0.98	.17	.37	.56	.75	1.7	3.4	5.2	6.9	8.6
24 20	28.192	56.38	84.57	112.77	140.96	169.15	197.34	225.53	253.72	1691.5	3383.0	5074.5	6766.0	8457.5
21	.188	.37	.56	.76	.94	.13	.31	.50	.69	1.3	2.6	3.7	5.1	6.4
22	.184	.37	.55	.74	.92	.11	.29	.47	.65	1.1	2.1	3.1	4.2	5.3
23	.180	.36	.54	.73	.90	.08	.26	.44	.62	0.8	1.7	2.5	3.3	4.1
24	.177	.35	.53	.71	.88	.06	.24	.41	.59	0.6	1.2	1.9	2.4	3.0
24 25	28.173	56.34	84.52	112.70	140.87	169.04	197.21	225.39	253.55	1690.4	3380.8	5071.2	6761.5	8451.9
26	.169	.34	.51	.68	.85	.02	.18	.36	.52	0.2	80.4	70.5	60.6	50.8
27	.166	.33	.50	.66	.83	9.00	.16	.33	.49	90.0	79.9	69.8	59.7	49.7
28	.162	.32	.49	.65	.81	8.97	.13	.30	.46	89.7	9.5	9.2	8.9	8.6
29	.158	.32	.47	.63	.79	.95	.11	.27	.42	9.5	9.0	8.5	8.0	7.5
24 30	28.155	56.31	84.46	112.62	140.77	168.93	197.08	225.24	253.39	1689.3	3378.6	5067.8	6757.1	8446.4
31	.151	.30	.45	.61	.75	.91	.05	.21	.36	9.1	8.1	7.1	6.2	5.3
32	.147	.29	.44	.59	.73	.88	.03	.18	.32	8.8	7.7	6.5	5.3	4.1
33	.143	.29	.43	.58	.72	.86	7.00	.15	.29	8.6	7.2	5.8	4.4	3.0
34	.140	.28	.42	.56	.70	.84	6.98	.12	.26	8.4	6.8	5.2	3.5	1.9
24 35	28.136	56.27	84.41	112.55	140.68	168.82	196.95	225.09	253.22	1688.2	3376.3	5064.5	6752.6	8440.8
36	.132	.26	.40	.53	.66	.79	.92	.06	.19	7.9	5.9	3.8	1.7	39.7
37	.129	.25	.39	.51	.64	.77	.90	.03	.16	7.7	5.4	3.1	0.8	8.6
38	.125	.25	.37	.50	.63	.75	.87	5.00	.13	7.5	5.0	2.5	50.0	7.4
39	.121	.24	.36	.48	.61	.72	.85	4.97	.09	7.2	4.5	1.8	49.1	6.3
24 40	28.117	56.23	84.35	112.47	140.59	168.70	196.82	224.94	253.06	1687.0	3374.1	5061.1	6748.2	8435.2
41	.114	.22	.34	.46	.57	.68	.79	.91	3.03	6.8	3.6	60.4	7.3	4.1
42	.110	.22	.33	.44	.55	.66	.77	.88	2.99	6.6	3.2	59.8	6.4	3.0
43	.106	.21	.32	.43	.53	.63	.74	.85	.96	6.3	2.7	9.1	5.5	1.8
44	.102	.20	.31	.41	.51	.61	.72	.82	.92	6.1	2.3	8.5	4.6	30.7
24 45	28.099	56.20	84.30	112.40	140.50	168.59	196.69	224.79	252.89	1685.9	3371.8	5057.8	6743.7	8429.6
46	.095	.19	.28	.38	.48	.57	.66	.76	.86	5.7	1.4	7.1	2.8	8.5
47	.091	.18	.27	.37	.46	.55	.64	.73	.82	5.5	0.9	6.4	1.9	7.3
48	.087	.17	.26	.35	.44	.52	.61	.70	.79	5.2	0.5	5.8	1.0	6.2
49	.084	.17	.25	.34	.42	.50	.59	.67	.75	5.0	70.0	5.1	40.1	5.1
24 50	28.080	56.16	84.24	112.32	140.40	168.48	196.56	224.64	252.72	1684.8	3369.6	5054.4	6739.2	8424.0
51	.076	.15	.23	.31	.38	.46	.53	.61	.69	4.6	9.1	3.7	8.3	2.8
52	.072	.14	.22	.29	.36	.43	.51	.58	.65	4.3	8.7	3.0	7.4	1.7
53	.069	.14	.21	.28	.34	.41	.48	.55	.62	4.1	8.2	2.4	6.4	20.6
54	.065	.13	.19	.26	.32	.39	.46	.52	.58	3.9	7.8	1.7	5.5	19.4
24 55	28.061	56.12	84.18	112.25	140.31	168.37	196.43	224.49	252.55	1683.7	3367.3	5051.0	6734.6	8418.3
56	.057	.11	.17	.23	.29	.34	.40	.46	.52	3.4	6.9	50.3	3.7	7.2
57	.053	.10	.16	.22	.27	.32	.38	.43	.48	3.2	6.4	49.6	2.8	6.0
58	.050	.10	.15	.20	.25	.30	.35	.40	.45	3.0	6.0	9.0	1.9	4.9
59	.046	.09	.14	.19	.23	.27	.33	.37	.41	2.7	5.5	8.3	1.0	3.8
24 60	28.042	56.08	84.13	112.17	140.21	168.25	196.30	224.34	252.38	1682.5	3365.1	5047.6	6730.1	8412.7

Lat.	Latitude 24° to 25°—Meridional arcs.						Latitude 24°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 24° 30'		Value of 1'	Continuous sums of minutes from latitude 24° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
24 00	30.765			1845.89					
1	5	1	30.77	.89	1	1 845.9	0 1	1 695.9	0.1
2	5	2	61.53	.89	2	3 691.8	2	3 391.8	0.4
3	5	3	92.30	.90	3	5 537.7	3	5 087.7	0.9
4	5	4	123.07	.90	4	7 383.6	4	6 783.6	1.6
24 05	30.765	5	153.83	1845.91	5	9 229.5	0 5	8 479.5	2.5
6	5	6	184.60	.91	6	11 075.4	6	10 175.4	3.6
7	5	7	215.37	.92	7	12 921.3	7	11 871.2	4.9
8	5	8	246.13	.92	8	14 767.2	8	13 567.1	6.4
9	5	9	276.90	.92	9	16 613.1	9	15 263.0	8.1
24 10	30.765	10	307.67	1845.93	10	18 459.1	0 10	16 958.9	10.0
11	6	1	338.44	.93	1	20 305.0	15	25 438.4	22.6
12	6	2	369.20	.94	2	22 150.9	20	33 917.8	40.1
13	6	3	399.97	.94	3	23 996.9	25	42 397.2	62.7
14	6	4	430.74	.94	4	25 842.8	30	50 876.6	90.3
24 15	30.766	15	461.50	1845.95	15	27 688.8	0 35	59 356.0	122.9
16	6	5	492.27	.95	5	29 534.7	40	67 835.4	160.5
17	6	7	523.04	.96	7	31 380.7	45	76 314.8	203.2
18	6	8	553.80	.96	8	33 226.6	50	84 794.1	250.8
19	6	9	584.57	.96	9	35 072.6	55	93 273.4	303.5
24 20	30.766	20	615.34	1845.97	20	36 918.6	1 00	101 752.7	361.2
21	6	1	646.10	.97	1	38 764.5	05	110 231.9	423.9
22	6	2	676.87	.98	2	40 610.5	10	118 711.1	491.6
23	6	3	707.64	.98	3	42 456.5	15	127 190.2	564.3
24	6	4	738.40	.98	4	44 302.5	20	135 669.3	642.1
24 25	30.766	25	769.17	1845.99	25	46 148.4	1 25	144 148.3	724.8
26	7	6	799.94	5.99	6	47 994.4	30	152 627.4	812.6
27	7	7	830.70	6.00	7	49 840.4	35	161 106.3	905.4
28	7	8	861.47	.00	8	51 686.4	40	169 585.2	1 003.2
29	7	9	892.24	.01	9	53 532.4	45	178 064.0	1 106.1
24 30	30.767	30	923.00	1846.01	30	55 378.4	1 50	186 542.8	1 213.9
31	7	1	953.77	.01	1	57 224.4	55	195 021.5	1 326.8
32	7	2	984.54	.02	2	59 070.5	2 00	203 500	1 445
33	7	3	1 015.31	.02	3	60 916.5	3 00	305 237	3 250
34	7	4	1 046.07	.03	4	62 762.5	4 00	406 959	5 778
24 35	30.767	35	1 076.84	1846.03	35	64 608.5	5 00	508 660	9 028
36	7	5	1 107.61	.03	5	66 454.6	6 00	610 336	13 001
37	7	7	1 138.37	.04	7	68 300.6	7 00	711 981	17 695
38	7	8	1 169.14	.04	8	70 146.6	8 00	813 590	23 109
39	7	9	1 199.91	.05	9	71 992.7	9 00	915 159	29 245
24 40	30.768	40	1 230.67	1846.05	40	73 838.7	10 00	1 016 681	36 102
41	8	1	1 261.44	.05	1	75 684.8	11 00	1 118 152	43 679
42	8	2	1 292.21	.06	2	77 530.8	12 00	1 219 566	51 977
43	8	3	1 322.97	.06	3	79 376.9	13 00	1 320 919	60 994
44	8	4	1 353.74	.07	4	81 223.0	14 00	1 422 205	70 731
24 45	30.768	45	1 384.51	1846.07	45	83 069.0	15 00	1 523 420	81 186
46	8	6	1 415.27	.08	6	84 915.1	16 00	1 624 558	92 360
47	8	7	1 446.04	.08	7	86 761.2	17 00	1 725 614	104 251
48	8	8	1 476.81	.08	8	88 607.3	18 00	1 826 583	116 859
49	8	9	1 507.57	.09	9	90 453.3	19 00	1 927 460	130 184
24 50	30.768	50	1 538.34	1846.09	50	92 299.4	20 00	2 028 240	144 225
51	8	1	1 569.11	.10	1	94 145.5	21 00	2 128 918	158 981
52	8	2	1 599.87	.10	2	95 991.6	22 00	2 229 488	174 451
53	8	3	1 630.64	.10	3	97 837.7	23 00	2 329 946	190 634
54	8	4	1 661.41	.11	4	99 683.8	24 00	2 430 287	207 530
24 55	30.769	55	1 692.17	1846.11	55	101 529.9	25 00	2 530 505	225 138
56	9	5	1 722.94	.12	5	103 376.1	26 00	2 630 596	243 458
57	9	7	1 753.71	.12	7	105 222.2	27 00	2 730 554	262 487
58	9	8	1 784.48	.13	8	107 068.3	28 00	2 830 374	282 225
59	9	9	1 815.24	.13	9	108 914.4	29 00	2 930 052	302 671
24 60	30.769	60	1 846.01	1846.13	60	110 760.6	30 00	3 029 582	323 825

Latitude 25° to 26°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
25 00	28.042	56.08	84.13	112.17	140.21	168.25	196.30	224.34	252.38	1682.5	3365.1	5047.6	6730.1	8412.7
1	.038	.07	.12	.16	.19	.23	.27	.31	.35	2.3	4.6	6.9	29.2	1.5
2	.035	.07	.10	.14	.17	.21	.25	.28	.31	2.1	4.2	6.2	8.3	10.4
3	.031	.06	.09	.13	.15	.18	.22	.25	.28	1.8	3.7	5.6	7.4	9.2
4	.027	.05	.08	.11	.13	.16	.19	.22	.24	1.6	3.3	4.9	6.5	8.1
25 05	28.023	56.04	84.07	112.10	140.12	168.14	196.17	224.18	252.21	1681.4	3362.8	5044.2	6725.6	8407.0
6	.019	.04	.06	.08	.10	.12	.14	.15	.18	1.2	2.3	3.5	4.7	5.8
7	.016	.03	.05	.07	.08	.10	.11	.12	.14	1.0	1.9	2.8	3.8	4.7
8	.012	.02	.03	.05	.06	.07	.08	.09	.11	0.7	1.4	2.2	2.8	3.5
9	.008	.02	.02	.04	.04	.05	.06	.06	.07	0.5	1.0	1.5	1.9	2.4
25 10	28.004	56.01	84.01	112.02	140.02	168.03	196.03	224.03	252.04	1680.3	3360.5	5040.8	6721.0	8401.3
11	8.000	6.00	4.00	2.00	40.00	8.00	6.00	4.00	2.01	80.0	60.0	40.1	20.1	400.1
12	7.997	5.99	3.99	1.99	39.98	7.98	5.98	3.97	1.97	79.8	59.6	39.4	19.2	399.0
13	.993	.99	.98	.97	.96	.96	.95	.94	.94	9.6	9.1	8.7	8.2	7.8
14	.989	.98	.97	.96	.94	.93	.92	.91	.90	9.3	8.7	8.0	7.3	6.7
25 15	27.985	55.97	83.95	111.94	139.93	167.91	195.90	223.88	251.87	1679.1	3358.2	5037.3	6716.4	8395.5
16	.981	.96	.94	.92	.91	.89	.87	.85	.83	8.9	7.7	6.6	5.5	4.4
17	.977	.95	.93	.91	.89	.86	.84	.82	.80	8.6	7.3	5.9	4.6	3.2
18	.974	.95	.92	.89	.87	.84	.81	.79	.76	8.4	6.8	5.3	3.6	2.1
19	.970	.94	.91	.88	.85	.82	.79	.76	.73	8.2	6.4	4.6	2.7	91.0
25 20	27.966	55.93	83.90	111.86	139.83	167.80	195.76	223.73	251.69	1678.0	3355.9	5033.9	6711.8	8389.8
21	.962	.92	.89	.85	.81	.78	.73	.70	.66	7.8	5.4	3.2	0.9	8.7
22	.958	.92	.88	.83	.79	.75	.71	.67	.62	7.5	5.0	2.5	10.0	7.5
23	.954	.91	.86	.82	.77	.73	.68	.64	.59	7.3	4.5	1.8	09.0	6.3
24	.951	.90	.85	.80	.75	.70	.65	.61	.55	7.0	4.1	1.1	8.1	5.2
25 25	27.947	55.90	83.84	111.79	139.74	167.68	195.62	223.57	251.52	1676.8	3353.6	5030.4	6707.2	8384.0
26	.943	.89	.83	.77	.72	.66	.60	.54	.48	6.6	3.1	29.7	6.3	2.9
27	.939	.88	.82	.76	.70	.63	.57	.51	.45	6.3	2.7	9.0	5.4	1.7
28	.935	.87	.81	.74	.68	.61	.54	.48	.41	6.1	2.2	8.4	4.4	80.6
29	.931	.87	.79	.73	.66	.59	.52	.45	.38	5.9	1.8	7.7	3.5	79.4
25 30	27.928	55.86	83.78	111.71	139.64	167.57	195.49	223.42	251.34	1675.7	3351.3	5027.0	6702.6	8378.3
31	.924	.85	.77	.70	.62	.55	.46	.39	.31	5.5	0.8	6.3	1.7	7.1
32	.920	.84	.76	.68	.60	.52	.44	.36	.27	5.2	50.4	5.6	700.8	6.0
33	.916	.84	.75	.67	.58	.50	.41	.33	.24	5.0	49.9	4.9	699.8	4.8
34	.912	.83	.74	.65	.56	.47	.38	.30	.20	4.7	9.5	4.2	8.9	3.7
25 35	27.908	55.82	83.72	111.64	139.55	167.45	195.36	223.26	251.17	1674.5	3349.0	5023.5	6698.0	8372.5
36	.904	.81	.71	.62	.53	.43	.33	.23	.14	4.3	8.5	2.8	7.1	1.3
37	.901	.80	.70	.61	.51	.40	.30	.20	.10	4.0	8.1	2.1	6.2	70.2
38	.897	.80	.69	.59	.49	.38	.27	.17	.07	3.8	7.6	1.4	5.2	69.0
39	.893	.79	.68	.58	.47	.36	.25	.14	.03	3.6	7.2	0.7	4.3	7.9
25 40	27.889	55.78	83.67	111.56	139.45	167.33	195.22	223.11	251.00	1673.3	3346.7	5020.0	6693.4	8366.7
41	.885	.77	.66	.54	.43	.31	.19	.08	0.97	3.1	6.2	19.3	2.5	5.5
42	.881	.76	.64	.53	.41	.29	.17	.05	.93	2.9	5.7	8.6	1.5	4.4
43	.877	.76	.63	.51	.39	.26	.14	3.02	.90	2.6	5.3	7.9	90.6	3.2
44	.873	.75	.62	.50	.37	.24	.11	2.99	.86	2.4	4.8	7.2	89.6	2.0
25 45	27.869	55.74	83.61	111.48	139.35	167.22	195.09	222.95	250.82	1672.2	3344.3	5016.5	6688.7	8360.8
46	.866	.73	.60	.46	.33	.19	.06	.92	.79	1.9	3.8	5.8	7.8	59.7
47	.862	.72	.59	.45	.31	.17	.03	.89	.75	1.7	3.4	5.1	6.8	8.5
48	.858	.72	.57	.43	.29	.15	5.00	.86	.72	1.5	2.9	4.4	5.9	7.4
49	.854	.71	.56	.42	.27	.12	4.98	.83	.68	1.2	2.5	3.7	4.9	6.2
25 50	27.850	55.70	83.55	111.40	139.25	167.10	194.95	222.80	250.65	1671.0	3342.0	5013.0	6684.0	8355.0
51	.846	.69	.54	.38	.23	.08	.92	.77	.62	0.8	1.5	2.3	3.1	3.8
52	.842	.68	.53	.37	.21	.05	.90	.74	.58	0.5	1.1	1.6	2.1	2.7
53	.838	.68	.51	.35	.19	.03	.87	.71	.55	0.3	0.6	0.9	1.2	1.5
54	.834	.67	.50	.34	.17	7.01	.84	.68	.51	70.1	40.2	10.2	80.2	50.3
25 55	27.831	55.66	83.49	111.32	139.16	166.98	194.82	222.64	250.48	1669.8	3339.7	5009.5	6679.3	8349.2
56	.827	.65	.48	.30	.14	.96	.79	.61	.44	9.6	9.2	8.8	8.4	8.0
57	.823	.64	.47	.29	.12	.94	.76	.58	.41	9.4	8.7	8.1	7.4	6.8
58	.819	.64	.46	.27	.10	.91	.73	.55	.37	9.1	8.3	7.4	6.5	5.6
59	.815	.63	.44	.26	.08	.89	.71	.52	.34	8.9	7.8	6.7	5.5	4.5
25 60	27.811	55.62	83.43	111.24	139.06	166.87	194.68	222.49	250.30	1668.7	3337.3	5006.0	6674.6	8343.3

Lat.	Latitude 25° to 26°—Meridional arcs.						Latitude 25°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 25° 30'		Value of 1'	Continuous sums of minutes from latitude 25° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
25 00	30.769			1846.13			0 1	1 682.5	0.1
1	9	1	30.77	.14	1	1 846.1	0 2	3 365.1	0.4
2	9	2	61.54	.14	2	3 692.3	0 3	5 047.6	0.9
3	9	3	92.31	.15	3	5 538.4	0 4	6 730.1	1.7
4	9	4	123.08	.15	4	7 384.6	0 5	8 412.7	2.6
25 05	30.769	5	153.86	1846.15	5	9 230.7	0 6	10 095.2	3.7
6	9	6	184.63	.16	6	11 076.9	0 7	11 777.7	5.1
7	9	7	215.40	.16	7	12 923.0	0 8	13 460.3	6.6
8	69	8	246.17	.17	8	14 769.2	0 9	15 142.8	8.4
9	70	9	276.94	.17	9	16 615.4	0 10	16 825.3	10.3
25 10	30.770	10	307.71	1846.18	10	18 461.5	0 15	25 238.0	23.3
11	0	1	338.48	.18	1	20 307.7	0 20	33 650.6	41.4
12	0	2	369.25	.18	2	22 153.9	0 25	42 063.2	64.6
13	0	3	400.02	.19	3	24 000.1	0 30	50 475.8	93.1
14	0	4	430.79	.19	4	25 846.3	0 35	58 888.4	126.7
25 15	30.770	15	461.57	1846.20	15	27 692.5	0 40	67 301.0	165.5
16	0	5	492.34	.20	5	29 538.7	0 45	75 713.5	209.4
17	0	6	523.11	.21	6	31 384.9	0 50	84 126.0	258.5
18	0	7	553.88	.21	7	33 231.1	0 55	92 538.5	312.8
19	0	8	584.65	.21	8	35 077.3	1 00	100 950.9	372.3
25 20	30.770	20	615.42	1846.22	20	36 923.5	1 05	109 363.4	436.9
21	0	1	646.19	.22	1	38 769.7	1 10	117 775.7	506.8
22	0	2	676.96	.23	2	40 615.9	1 15	126 188.0	581.7
23	1	3	707.73	.23	3	42 462.2	1 20	134 600.3	661.9
24	1	4	738.50	.23	4	44 308.4	1 25	143 012.5	747.2
25 25	30.771	25	769.28	1846.24	25	46 154.6	1 30	151 424.7	837.7
26	1	5	800.05	.24	5	48 000.9	1 35	159 836.8	933.4
27	1	6	830.82	.25	6	49 847.1	1 40	168 248.9	1 034.2
28	1	7	861.59	.25	7	51 693.4	1 45	176 660.9	1 140.2
29	1	8	892.36	.26	8	53 539.6	1 50	185 072.8	1 251.4
25 30	30.771	30	923.13	1846.26	30	55 385.9	1 55	193 484.6	1 367.7
31	1	1	953.90	.26	1	57 232.1	2 00	201 896	1 489
32	1	2	984.67	.27	2	59 078.4	2 05	302 831	3 351
33	1	3	1 015.44	.27	3	60 924.7	2 10	403 749	5 957
34	1	4	1 046.21	.28	4	62 771.0	2 15	504 645	9 307
25 35	30.771	35	1 076.99	1846.28	35	64 617.2	2 20	605 514	13 401
36	1	5	1 107.76	.29	5	66 463.5	2 25	706 349	18 239
37	1	6	1 138.53	.29	6	68 309.8	2 30	807 146	23 821
38	2	7	1 169.30	.29	7	70 156.1	2 35	907 899	30 146
39	2	8	1 200.07	.30	8	72 002.4	2 40	1 008 603	37 215
25 40	30.772	40	1 230.84	1846.30	40	73 848.7	2 45	1 109 252	45 026
41	2	1	1 261.61	.31	1	75 695.0	2 50	1 209 841	53 578
42	2	2	1 292.38	.31	2	77 541.3	2 55	1 310 364	62 873
43	2	3	1 323.15	.32	3	79 387.6	3 00	1 410 815	72 909
44	2	4	1 353.92	.32	4	81 233.9	3 05	1 511 190	82 685
25 45	30.772	45	1 384.70	1846.32	45	83 080.3	3 10	1 611 483	95 202
46	2	5	1 415.47	.33	5	84 926.6	3 15	1 711 688	107 458
47	2	6	1 446.24	.33	6	86 772.9	3 20	1 811 800	120 453
48	2	7	1 477.01	.34	7	88 619.3	3 25	1 911 813	134 186
49	2	8	1 507.78	.34	8	90 465.6	3 30	2 011 722	148 656
25 50	30.772	50	1 538.55	1846.35	50	92 311.9	3 35	2 111 522	163 862
51	2	1	1 569.32	.35	1	94 158.3	3 40	2 211 207	179 805
52	3	2	1 600.09	.35	2	96 004.6	3 45	2 310 771	196 482
53	3	3	1 630.86	.36	3	97 851.0	3 50	2 410 210	213 894
54	3	4	1 661.63	.36	4	99 697.4	3 55	2 509 518	232 038
25 55	30.773	55	1 692.41	1846.37	55	101 543.7	4 00	2 608 689	250 914
56	3	5	1 723.18	.37	5	103 390.1	4 05	2 707 718	270 521
57	3	6	1 753.95	.38	6	105 236.5	4 10	2 806 600	290 859
58	3	7	1 784.72	.38	7	107 082.8	4 15	2 905 329	311 925
59	3	8	1 815.49	.38	8	108 929.2	4 20	3 003 900	333 718
25 60	30.773	60	1 846.26	1846.39	60	110 775.6	4 25		

Latitude 26° to 27°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
26 00	27.811	55.62	83.43	111.24	139.06	166.87	194.68	222.49	250.30	1668.7	3337.3	5006.0	6674.6	8343.3
1	.807	.61	.42	.23	.04	.85	.65	.46	.26	8.5	6.8	5.3	3.7	2.1
2	.803	.60	.41	.21	.02	.82	.62	.43	.23	8.2	6.3	4.6	2.7	40.9
3	.799	.60	.40	.20	.00	.80	.60	.39	.19	8.0	5.9	3.8	1.8	39.7
4	.795	.59	.39	.18	8.98	.77	.57	.36	.16	7.7	5.4	3.1	70.8	8.6
26 05	27.791	55.58	83.37	111.17	138.96	166.75	194.54	222.33	250.12	1667.5	3334.9	5002.4	6669.9	8337.4
5	.787	.57	.36	.15	.94	.73	.51	.30	.08	7.3	4.4	1.7	9.0	6.2
6	.783	.56	.35	.14	.92	.70	.48	.27	.05	7.0	4.0	1.0	8.0	5.0
7	.779	.56	.34	.12	.90	.68	.46	.23	50.01	6.8	3.5	5000.3	7.1	3.8
8	.776	.55	.33	.11	.88	.65	.43	.20	49.98	6.5	3.1	4999.6	6.1	2.7
26 10	27.772	55.54	83.31	111.09	138.86	166.63	194.40	222.17	249.94	1666.3	3332.6	4998.9	6665.2	8331.5
11	.768	.53	.30	.07	.84	.61	.37	.14	.91	6.1	2.1	8.2	4.2	30.3
12	.764	.52	.29	.06	.82	.58	.34	.11	.87	5.8	1.6	7.5	3.3	29.1
13	.760	.52	.28	.04	.80	.56	.32	.08	.84	5.6	1.2	6.7	2.3	7.9
14	.756	.51	.27	.03	.78	.53	.29	.05	.80	5.3	0.7	6.0	1.4	6.7
26 15	27.752	55.50	83.25	111.01	138.76	166.51	194.26	222.01	249.77	1665.1	3330.2	4995.3	6660.4	8325.5
15	.748	.49	.24	0.99	.74	.49	.23	1.98	.73	4.9	29.7	4.6	59.5	4.4
16	.744	.48	.23	.98	.72	.46	.20	.95	.70	4.6	9.2	3.9	8.5	3.2
17	.740	.48	.22	.96	.70	.44	.18	.92	.66	4.4	8.8	3.2	7.6	2.0
18	.736	.47	.21	.95	.68	.41	.15	.89	.63	4.1	8.3	2.5	6.6	20.8
26 20	27.732	55.46	83.20	110.93	138.66	166.39	194.12	221.86	249.59	1663.9	3327.8	4991.8	6655.7	8319.6
21	.728	.45	.18	.91	.64	.37	.09	.83	.55	3.7	7.3	1.1	4.7	8.4
22	.724	.44	.17	.90	.62	.34	.07	.80	.52	3.4	6.9	90.4	3.8	7.2
23	.720	.44	.16	.88	.60	.32	.04	.76	.48	3.2	6.4	89.6	2.8	6.0
24	.716	.43	.15	.87	.58	.29	4.01	.73	.45	2.9	6.0	8.9	1.9	4.8
26 25	27.712	55.42	83.14	110.85	138.56	166.27	193.98	221.70	249.41	1662.7	3325.5	4988.2	6650.9	8313.6
25	.708	.41	.12	.83	.54	.25	.96	.67	.37	2.5	5.0	7.5	49.9	2.4
26	.704	.40	.11	.82	.52	.22	.93	.64	.34	2.2	4.5	6.8	9.0	1.2
27	.700	.40	.10	.80	.50	.20	.90	.60	.30	2.0	4.1	6.0	8.0	10.0
28	.696	.39	.09	.79	.48	.17	.88	.57	.27	1.7	3.6	5.3	7.1	08.9
26 30	27.692	55.38	83.08	110.77	138.46	166.15	193.85	221.54	249.23	1661.5	3323.1	4984.6	6646.1	8307.7
31	.688	.37	.07	.75	.44	.13	.82	.51	.19	1.3	2.6	3.9	5.1	6.5
32	.684	.36	.05	.74	.42	.10	.79	.48	.16	1.0	2.1	3.2	4.2	5.3
33	.680	.36	.04	.72	.40	.08	.76	.44	.12	0.8	1.7	2.4	3.2	4.0
34	.676	.35	.03	.71	.38	.05	.73	.41	.09	0.5	1.2	1.7	2.3	2.8
26 35	27.672	55.34	83.02	110.69	138.36	166.03	193.71	221.38	249.05	1660.3	3320.7	4981.0	6641.3	8301.6
35	.668	.33	3.00	.67	.34	6.01	.68	.35	9.01	60.1	20.2	80.3	40.3	300.4
36	.664	.32	2.99	.66	.32	5.98	.65	.32	8.98	59.8	19.7	79.6	39.4	299.2
37	.660	.32	.98	.64	.30	.96	.62	.28	.94	9.6	9.3	8.8	8.4	8.0
38	.656	.31	.97	.63	.28	.93	.59	.25	.91	9.3	8.8	8.1	7.5	6.8
26 40	27.652	55.30	82.96	110.61	138.26	165.91	193.56	221.22	248.87	1659.1	3318.3	4977.4	6636.5	8295.6
41	.648	.29	.94	.59	.24	.89	.53	.19	.83	8.9	7.8	6.7	5.5	4.4
42	.644	.28	.93	.58	.22	.86	.50	.16	.80	8.6	7.3	6.0	4.6	3.2
43	.640	.28	.92	.56	.20	.84	.48	.12	.76	8.4	6.8	5.2	3.6	2.0
44	.636	.27	.91	.55	.18	.81	.45	.09	.73	8.1	6.3	4.5	2.7	90.8
26 45	27.632	55.26	82.90	110.53	138.16	165.79	193.42	221.06	248.69	1657.9	3315.8	4973.8	6631.7	8289.6
45	.628	.25	.88	.51	.14	.77	.39	.03	.65	7.7	5.3	3.1	30.7	8.4
46	.624	.24	.87	.50	.12	.74	.36	1.00	.62	7.4	4.8	2.3	29.7	7.2
47	.620	.24	.86	.48	.10	.72	.34	0.96	.58	7.2	4.4	1.6	8.8	6.0
48	.616	.23	.85	.47	.08	.69	.31	.93	.55	6.9	3.9	0.8	7.8	4.8
26 50	27.612	55.22	82.84	110.45	138.06	165.67	193.28	220.90	248.51	1656.7	3313.4	4970.1	6626.8	8283.6
51	.608	.21	.82	.43	.04	.65	.25	.87	.47	6.5	2.9	69.4	5.8	2.3
52	.604	.20	.81	.42	.02	.62	.22	.83	.44	6.2	2.4	8.7	4.9	81.1
53	.600	.20	.80	.40	8.00	.60	.20	.80	.40	6.0	2.0	7.9	3.9	79.9
54	.596	.19	.79	.39	7.98	.57	.17	.77	.36	5.7	1.5	7.2	3.0	8.7
26 55	27.592	55.18	82.78	110.37	137.96	165.55	193.14	220.73	248.32	1655.5	3311.0	4966.5	6622.0	8277.5
55	.588	.17	.76	.35	.94	.53	.11	.70	.29	5.3	0.5	5.8	1.0	6.3
56	.583	.16	.75	.34	.92	.50	.08	.67	.25	5.0	10.0	5.0	20.0	5.0
57	.579	.16	.74	.32	.90	.48	.06	.64	.21	4.8	09.6	4.3	19.1	3.8
58	.575	.15	.73	.31	.88	.45	.03	.60	.18	4.5	9.1	3.5	8.1	2.6
26 60	27.571	55.14	82.71	110.29	137.86	165.43	193.00	220.57	248.14	1654.3	3308.6	4962.8	6617.1	8271.4

Lat.	Latitude 26° to 27°—Meridional arcs.					Latitude 26°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 26° 30'		Value of 1'	Continuous sums of minutes from latitude 26° 00'	Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	' "	Meters.	Meters.	Meters.
26 00	30.773			1846.39				
1	3	1	30.78	.39	1	1 846.4	1 668.7	0.1
2	3	2	61.55	.40	2	3 692.8	3 337.3	0.4
3	3	3	92.33	.40	3	5 539.2	5 006.0	1.0
4	3	4	123.10	.41	4	7 385.6	6 674.6	1.7
26 05	30.773	5	153.88	1846.41	5	9 232.0	8 343.3	2.7
6	4	6	184.65	.41	6	11 078.4	10 011.9	3.8
7	4	7	215.43	.42	7	12 924.8	11 680.6	5.2
8	4	8	246.20	.42	8	14 771.2	13 349.2	6.8
9	4	9	276.98	.43	9	16 617.7	15 017.9	8.6
26 10	30.774	10	307.75	1846.43	10	18 464.1	16 686.6	10.6
11	4	1	338.53	.44	1	20 310.5	25 029.8	23.9
12	4	2	369.30	.44	2	22 157.0	33 373.1	42.6
13	4	3	400.08	.44	3	24 003.4	41 716.4	66.5
14	4	4	430.85	.45	4	25 849.9	50 059.6	95.8
26 15	30.774	15	461.63	1846.45	15	27 696.3	58 402.9	130.3
16	4	6	492.40	.46	6	29 542.8	66 746.1	170.2
17	4	7	523.18	.46	7	31 389.2	75 089.2	215.4
18	4	8	553.96	.47	8	33 235.7	83 432.4	266.0
19	5	9	584.73	.47	9	35 082.2	91 775.5	321.8
26 20	30.775	20	615.51	1846.47	20	36 928.6	100 118.5	383.0
21	5	1	646.28	.48	1	38 775.1	108 461.5	449.5
22	5	2	677.06	.48	2	40 621.6	116 804.6	521.3
23	5	3	707.83	.49	3	42 468.1	125 147.5	598.4
24	5	4	738.61	.49	4	44 314.6	133 490.4	680.9
26 25	30.775	25	769.38	1846.50	25	46 161.1	141 833.2	768.7
26	5	6	800.16	.50	6	48 007.6	150 176.0	861.7
27	5	7	830.93	.51	7	49 854.1	158 518.7	960.2
28	5	8	861.71	.51	8	51 700.6	166 861.3	1 063.9
29	5	9	892.48	.51	9	53 547.1	175 203.9	1 172.9
26 30	30.775	30	923.26	1846.52	30	55 393.6	183 546.4	1 287.3
31	5	1	954.03	.52	1	57 240.1	191 888.9	1 407.0
32	5	2	984.81	.53	2	59 086.7	200 231	1 532
33	6	3	1 015.59	.53	3	60 933.2	300 332	3 447
34	6	4	1 046.36	.54	4	62 779.7	400 416	6 128
26 35	30.776	35	1 077.14	1846.54	35	64 626.2	500 476	9 574
36	6	6	1 107.91	.54	6	66 472.8	600 506	13 786
37	6	7	1 138.69	.55	7	68 319.3	700 501	18 763
38	6	8	1 169.46	.55	8	70 165.9	800 456	24 505
39	6	9	1 200.24	.56	9	72 012.4	900 364	31 011
26 40	30.776	40	1 231.01	1846.56	40	73 859.0	1 000 218	38 282
41	6	1	1 261.79	.57	1	75 705.6	1 100 015	46 316
42	6	2	1 292.56	.57	2	77 552.1	1 199 747	55 114
43	6	3	1 323.34	.58	3	79 398.7	1 299 409	64 675
44	6	4	1 354.11	.58	4	81 245.3	1 398 994	74 998
26 45	30.776	45	1 384.89	1846.58	45	83 091.9	1 498 498	86 082
46	6	6	1 415.66	.59	6	84 938.4	1 597 914	97 928
47	7	7	1 446.44	.59	7	86 785.0	1 697 237	110 534
48	7	8	1 477.21	.60	8	88 631.6	1 796 460	123 899
49	7	9	1 507.99	.60	9	90 478.2	1 895 578	138 023
26 50	30.777	50	1 538.77	1846.61	50	92 324.8	1 994 585	152 905
51	7	1	1 569.54	.61	1	94 171.4	2 093 475	168 544
52	7	2	1 600.32	.61	2	96 018.1	2 192 243	184 939
53	7	3	1 631.09	.62	3	97 864.7	2 290 882	202 089
54	7	4	1 661.87	.62	4	99 711.3	2 389 387	219 993
26 55	30.777	55	1 692.64	1846.63	55	101 557.9	2 487 753	238 650
56	7	6	1 723.42	.63	6	103 404.6	2 585 973	258 061
57	7	7	1 754.19	.64	7	105 251.2	2 684 042	278 222
58	7	8	1 784.97	.64	8	107 097.8	2 781 953	299 132
59	7	9	1 815.74	.65	9	108 944.5	2 879 702	320 788
26 60	30.777	60	1 846.52	1846.65	60	110 791.1	2 977 281	343 197

Latitude 27° to 28°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
27 00	27.571	55.14	82.71	110.29	137.86	165.43	193.00	220.57	248.14	1654.3	3308.6	4962.8	6617.1	8271.4
1	.567	.13	.70	.27	.84	.41	2.97	.54	.10	4.1	8.1	2.1	6.1	70.2
2	.563	.12	.69	.26	.82	.38	.94	.50	.07	3.8	7.6	1.4	5.1	68.9
3	.559	.12	.68	.24	.80	.35	.91	.47	8.03	3.5	7.1	60.6	4.2	7.7
4	.555	.11	.66	.22	.78	.33	.88	.44	7.99	3.3	6.6	59.9	3.2	6.5
27 05	27.551	55.10	82.65	110.21	137.76	165.31	192.86	220.40	247.96	1653.1	3306.1	4959.2	6612.2	8265.3
5	.547	.09	.64	.19	.73	.28	.83	.37	.92	2.8	5.6	8.5	1.2	4.1
7	.543	.08	.63	.17	.71	.26	.80	.34	.88	2.6	5.1	7.7	10.2	2.8
8	.539	.08	.62	.15	.69	.23	.77	.31	.84	2.3	4.7	6.9	09.3	1.6
9	.535	.07	.60	.14	.67	.21	.74	.27	.81	2.1	4.2	6.2	8.3	60.4
27 10	27.531	55.06	82.59	110.12	137.65	165.18	192.71	220.24	247.77	1651.8	3303.7	4955.5	6607.3	8259.2
11	.526	.05	.58	.10	.63	.16	.68	.21	.73	1.6	3.2	4.8	6.3	7.9
12	.522	.04	.57	.09	.61	.13	.65	.18	.70	1.3	2.7	4.0	5.3	6.7
13	.518	.04	.55	.08	.59	.11	.63	.14	.66	1.1	2.2	3.3	4.4	5.5
14	.514	.03	.54	.06	.57	.08	.60	.11	.63	0.8	1.7	2.5	3.4	4.2
27 15	27.510	55.02	82.53	110.04	137.55	165.06	192.57	220.08	247.59	1650.6	3301.2	4951.8	6602.4	8253.0
16	.506	.01	.52	.03	.53	.04	.54	.05	.55	0.4	0.7	1.1	1.4	1.8
17	.502	.00	.51	10.01	.51	5.01	.51	20.02	.52	50.1	300.2	50.3	600.4	50.6
18	.498	5.00	.49	09.99	.49	4.99	.49	19.98	.48	49.9	299.7	49.6	599.5	49.3
19	.494	4.99	.48	.98	.47	.96	.46	.95	.45	9.6	9.2	8.8	8.5	8.1
27 20	27.490	54.98	82.47	109.96	137.45	164.94	192.43	219.92	247.41	1649.4	3298.7	4948.1	6597.5	8246.9
21	.485	.97	.46	.94	.43	.91	.40	.89	.37	9.1	8.2	7.4	6.5	5.6
22	.481	.96	.44	.93	.41	.89	.37	.85	.33	8.9	7.7	6.6	5.5	4.4
23	.477	.96	.43	.91	.39	.86	.34	.82	.30	8.6	7.3	5.9	4.5	3.2
24	.473	.95	.42	.89	.37	.84	.31	.79	.26	8.4	6.8	5.1	3.5	1.9
27 25	27.469	54.94	82.41	109.88	137.34	164.81	192.29	219.75	247.22	1648.1	3296.3	4944.4	6592.5	8240.7
26	.465	.93	.39	.86	.32	.79	.26	.72	.18	7.9	5.8	3.7	1.5	39.4
27	.461	.92	.38	.84	.30	.76	.23	.69	.14	7.6	5.3	2.9	90.5	8.2
28	.457	.92	.37	.82	.28	.74	.20	.66	.11	7.4	4.8	2.2	89.6	7.0
29	.452	.91	.36	.81	.26	.71	.17	.62	.07	7.1	4.3	1.4	8.6	5.7
27 30	27.448	54.90	82.34	109.79	137.24	164.69	192.14	219.59	247.03	1646.9	3293.8	4940.7	6587.6	8234.5
31	.444	.89	.33	.77	.22	.67	.11	.56	6.99	6.7	3.3	40.0	6.6	3.3
32	.440	.88	.32	.76	.20	.64	.08	.52	.96	6.4	2.8	39.2	5.6	2.0
33	.436	.87	.31	.74	.18	.62	.05	.49	.92	6.2	2.3	8.5	4.6	30.8
34	.432	.86	.29	.73	.16	.59	.02	.46	.88	5.9	1.8	7.7	3.6	29.5
27 35	27.428	54.86	82.28	109.71	137.13	164.57	192.00	219.42	246.84	1645.7	3291.3	4937.0	6582.6	8228.3
36	.423	.85	.27	.69	.11	.54	1.97	.39	.81	5.4	0.8	6.2	1.6	7.0
37	.419	.84	.26	.68	.09	.52	.94	.36	.77	5.2	90.3	5.5	80.6	5.8
38	.415	.83	.24	.66	.07	.49	.91	.33	.73	4.9	89.8	4.7	79.6	4.5
39	.411	.82	.23	.65	.05	.47	.88	.29	.70	4.7	9.3	4.0	8.6	3.3
27 40	27.407	54.81	82.22	109.63	137.03	164.44	191.85	219.26	246.66	1644.4	3288.8	4933.2	6577.6	8222.1
41	.403	.80	.21	.61	7.01	.42	.82	.23	.62	4.2	8.3	2.5	6.6	20.8
42	.399	.79	.20	.60	6.99	.39	.79	.19	.59	3.9	7.8	1.7	5.6	19.6
43	.394	.79	.18	.58	.97	.37	.76	.16	.55	3.7	7.3	1.0	4.6	8.3
44	.390	.78	.17	.56	.95	.34	.73	.12	.51	3.4	6.8	30.2	3.6	7.1
27 45	27.386	54.77	82.16	109.55	136.93	164.32	191.71	219.09	246.48	1643.2	3286.3	4929.5	6572.6	8215.8
46	.382	.76	.15	.53	.91	.29	.68	.06	.44	2.9	5.8	8.7	1.6	4.6
47	.378	.75	.13	.51	.89	.27	.65	9.02	.40	2.7	5.3	8.0	70.6	3.3
48	.374	.75	.12	.49	.87	.24	.62	8.99	.36	2.4	4.8	7.2	69.6	2.1
49	.369	.74	.11	.48	.85	.22	.59	.95	.33	2.2	4.3	6.5	8.6	10.8
27 50	27.365	54.73	82.10	109.46	136.83	164.19	191.56	218.92	246.29	1641.9	3283.8	4925.7	6567.6	8209.6
51	.361	.72	.08	.44	.81	.17	.53	.89	.25	1.7	3.3	5.0	6.6	8.3
52	.357	.71	.07	.43	.79	.14	.50	.85	.21	1.4	2.8	4.2	5.6	7.0
53	.353	.71	.06	.41	.77	.12	.47	.82	.18	1.2	2.3	3.5	4.6	5.8
54	.348	.70	.05	.39	.75	.09	.44	.79	.14	0.9	1.8	2.7	3.6	4.5
27 55	27.344	54.69	82.03	109.38	136.72	164.07	191.41	218.75	246.10	1640.7	3281.3	4922.0	6562.6	8203.3
56	.340	.68	.02	.36	.70	.04	.38	.72	.06	0.4	0.8	1.2	1.6	2.0
57	.336	.67	.01	.34	.68	4.02	.35	.69	6.02	40.2	80.3	20.5	60.6	200.7
58	.332	.67	2.00	.32	.66	3.99	.32	.66	5.99	39.9	79.8	19.7	59.6	199.5
59	.327	.66	1.98	.31	.64	.96	.29	.62	.95	9.6	9.3	8.9	8.6	8.2
27 60	27.323	54.65	81.97	109.29	136.62	163.94	191.26	218.59	245.91	1639.4	3278.8	4918.2	6557.6	8197.0

Lat.	Latitude 27° to 28°—Meridional arcs.						Latitude 27°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 27° 30'		Value of 1'	Continuous sums of minutes from latitude 27° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	' "	Meters.	° ' "	Meters.	Meters.
27 00	30.777			1846.65			0 1	1 654.3	0.1
1	8	1	30.78	.65	1	1 846.7	0 2	3 308.5	0.4
2	8	2	61.56	.66	2	3 693.3	0 3	4 962.8	1.0
3	8	3	92.34	.66	3	5 540.0	0 4	6 617.1	1.7
4	8	4	123.12	.67	4	7 386.6	0 5	8 271.4	2.7
27 05	30.778	5	153.90	1846.67	5	9 233.3	0 6	9 925.7	3.9
6	8	6	184.68	.68	6	11 080.0	0 7	11 579.9	5.4
7	8	7	215.46	.68	7	12 926.7	0 8	13 234.2	7.0
8	8	8	246.24	.69	8	14 773.3	0 9	14 888.5	8.8
9	8	9	277.02	.69	9	16 620.0	0 10	16 542.8	10.9
27 10	30.778	10	307.80	1846.69	10	18 466.7	0 15	24 814.1	24.6
11	8	11	338.58	.70	11	20 313.4	0 20	33 085.5	43.7
12	8	12	369.36	.70	12	22 160.1	0 25	41 356.9	68.3
13	8	13	400.14	.71	13	24 006.8	0 30	49 628.2	98.3
14	9	14	430.92	.71	14	25 853.5	0 35	57 899.5	133.8
27 15	30.779	15	461.70	1846.72	15	27 700.2	0 40	66 170.8	174.8
16	9	16	492.48	.72	16	29 547.0	0 45	74 442.1	221.2
17	9	17	523.26	.73	17	31 393.7	0 50	82 713.3	273.1
18	9	18	554.04	.73	18	33 240.4	0 55	90 984.5	330.4
19	9	19	584.81	.73	19	35 087.2	1 00	99 255.7	393.2
27 20	30.779	20	615.59	1846.74	20	36 933.9	1 05	107 526.8	461.5
21	9	21	646.37	.74	21	38 780.6	1 10	115 797.9	535.2
22	9	22	677.15	.75	22	40 627.4	1 15	124 068.9	614.4
23	9	23	707.93	.75	23	42 474.1	1 20	132 339.9	699.1
24	9	24	738.71	.76	24	44 320.9	1 25	140 610.8	789.2
27 25	30.779	25	769.49	1846.76	25	46 167.6	1 30	148 881.6	884.8
26	9	26	800.27	.77	26	48 014.4	1 35	157 152.3	985.8
27	9	27	831.05	.77	27	49 861.2	1 40	165 423.1	1 092.3
28	80	28	861.83	.77	28	51 707.9	1 45	173 693.7	1 204.3
29	0	29	892.61	.78	29	53 554.7	1 50	181 964.3	1 321.7
27 30	30.780	30	923.39	1846.78	30	55 401.5	1 55	190 234.7	1 444.6
31	0	31	954.17	.79	31	57 248.3	2 00	198 505	1 573
32	0	32	984.95	.79	32	59 095.1	2 05	207 776	1 709
33	0	33	1 015.73	.80	33	60 941.9	2 10	217 046	1 845
34	0	34	1 046.51	.80	34	62 788.7	2 15	226 316	1 981
27 35	30.780	35	1 077.29	1846.81	35	64 635.5	2 20	235 586	2 117
36	0	36	1 108.07	.81	36	66 482.3	2 25	244 856	2 253
37	0	37	1 138.85	.81	37	68 329.1	2 30	254 126	2 389
38	0	38	1 169.63	.82	38	70 175.9	2 35	263 396	2 525
39	0	39	1 200.41	.82	39	72 022.7	2 40	272 666	2 661
27 40	30.780	40	1 231.19	1846.83	40	73 869.6	2 45	281 936	2 797
41	1	41	1 261.97	.83	41	75 716.4	2 50	291 206	2 933
42	1	42	1 292.75	.84	42	77 563.2	2 55	300 476	3 069
43	1	43	1 323.53	.84	43	79 410.1	2 60	309 746	3 205
44	1	44	1 354.31	.85	44	81 256.9	2 65	319 016	3 341
27 45	30.781	45	1 385.09	1846.85	45	83 103.7	2 70	328 286	3 477
46	1	46	1 415.87	.86	46	84 950.6	2 75	337 556	3 613
47	1	47	1 446.65	.86	47	86 797.5	2 80	346 826	3 749
48	1	48	1 477.43	.86	48	88 644.3	2 85	356 096	3 885
49	1	49	1 508.21	.87	49	90 491.2	2 90	365 366	4 021
27 50	30.781	50	1 538.99	1846.87	50	92 338.1	2 95	374 636	4 157
51	1	51	1 569.77	.88	51	94 184.9	3 00	383 906	4 293
52	1	52	1 600.55	.88	52	96 031.8	3 05	393 176	4 429
53	1	53	1 631.33	.89	53	97 878.7	3 10	402 446	4 565
54	2	54	1 662.11	.89	54	99 725.6	3 15	411 716	4 701
27 55	30.782	55	1 692.88	1846.90	55	101 572.5	3 20	420 986	4 837
56	2	56	1 723.66	.90	56	103 419.4	3 25	430 256	4 973
57	2	57	1 754.44	.90	57	105 266.3	3 30	439 526	5 109
58	2	58	1 785.22	.91	58	107 113.2	3 35	448 796	5 245
59	2	59	1 816.00	.91	59	108 960.1	3 40	458 066	5 381
27 60	30.782	60	1 846.78	1846.92	60	110 807.0	3 45	467 336	5 517

Latitude 28° to 29°—Arcs of the parallel in meters.														
Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
28 00	27.323	54.65	81.97	109.29	136.62	163.94	191.26	218.59	245.91	1639.4	3278.8	4918.2	6557.6	8197.0
1	.319	.64	.96	.27	.60	.91	.23	.56	.87	9.1	8.3	7.4	6.6	5.7
2	.315	.63	.94	.26	.58	.89	.20	.52	.83	8.9	7.8	6.7	5.6	4.4
3	.311	.62	.93	.24	.56	.86	.17	.49	.80	8.6	7.3	5.9	4.5	3.2
4	.306	.61	.92	.22	.54	.84	.14	.45	.76	8.4	6.8	5.2	3.5	1.9
28 05	27.302	54.60	81.91	109.21	136.51	163.81	191.12	218.42	245.72	1638.1	3276.3	4914.4	6552.5	8190.7
6	.298	.60	.89	.19	.49	.79	.09	.39	.68	7.9	5.8	3.6	1.5	89.4
7	.294	.59	.88	.17	.47	.76	.06	.35	.66	7.6	5.3	2.9	50.5	8.1
8	.290	.58	.87	.15	.45	.74	.03	.32	.61	7.4	4.7	2.1	49.5	6.9
9	.285	.57	.86	.14	.43	.71	1.00	.28	.57	7.1	4.2	1.4	48.5	5.6
28 10	27.281	54.56	81.84	109.12	136.41	163.69	190.97	218.25	245.53	1636.9	3273.7	4910.6	6547.5	8184.3
11	.277	.55	.83	.10	.39	.66	.94	.22	.49	6.6	3.2	09.8	6.5	3.1
12	.273	.54	.82	.09	.37	.64	.91	.18	.45	6.4	2.7	9.1	5.4	1.8
13	.268	.54	.80	.07	.34	.61	.88	.15	.42	6.1	2.2	8.5	4.4	80.5
14	.264	.53	.79	.05	.32	.59	.85	.11	.38	5.9	1.7	7.6	3.4	79.3
28 15	27.260	54.52	81.78	109.04	136.30	163.56	190.82	218.08	245.34	1635.6	3271.2	4906.8	6542.4	8178.0
16	.256	.51	.77	.02	.28	.53	.79	.05	.30	5.3	0.7	6.0	1.4	6.7
17	.251	.50	.75	9.00	.26	.51	.76	8.01	.26	5.1	70.2	5.3	40.3	5.4
18	.247	.50	.74	8.98	.23	.48	.73	7.98	.23	4.8	69.6	4.5	39.3	4.2
19	.243	.49	.73	.97	.21	.46	.70	.94	.19	4.6	9.1	3.8	8.3	2.9
28 20	27.239	54.48	81.72	108.95	136.19	163.43	190.67	217.91	245.15	1634.3	3268.6	4903.0	6537.3	8171.6
21	.234	.47	.70	.93	.17	.41	.64	.88	.11	4.1	8.1	2.2	6.3	70.3
22	.230	.46	.69	.92	.15	.38	.61	.84	.07	3.8	7.6	1.4	5.2	69.1
23	.226	.45	.68	.90	.13	.36	.58	.81	.03	3.6	7.1	900.7	4.2	7.8
24	.222	.44	.67	.88	.11	.33	.55	.77	5.01	3.3	6.6	899.9	3.2	6.5
28 25	27.217	54.44	81.65	108.87	136.08	163.30	190.52	217.74	244.96	1633.0	3266.1	4899.1	6532.2	8165.2
26	.213	.43	.64	.85	.06	.28	.49	.71	.92	2.8	5.6	8.3	1.2	3.9
27	.209	.42	.63	.83	.04	.25	.46	.67	.88	2.5	5.1	7.6	30.1	2.7
28	.205	.41	.61	.81	.02	.23	.43	.64	.84	2.3	4.5	6.8	29.1	1.4
29	.200	.40	.60	.80	6.00	.20	.40	.60	.80	2.0	4.0	6.1	8.1	60.1
28 30	27.196	54.39	81.59	108.78	135.98	163.18	190.37	217.57	244.76	1631.8	3263.5	4895.3	6527.1	8158.8
31	.192	.38	.58	.76	.96	.15	.34	.54	.72	1.5	3.0	4.5	6.0	7.5
32	.188	.37	.56	.75	.94	.13	.31	.50	.68	1.3	2.5	3.7	5.0	6.3
33	.183	.37	.55	.73	.92	.10	.28	.47	.65	1.0	2.0	3.0	4.0	5.0
34	.179	.36	.54	.71	.90	.08	.25	.43	.61	0.8	1.5	2.2	2.9	3.7
28 35	27.175	54.35	81.52	108.70	135.87	163.05	190.22	217.40	244.57	1630.5	3261.0	4891.4	6521.9	8152.4
36	.170	.34	.51	.68	.85	.02	.19	.37	.53	0.2	0.5	90.6	20.9	51.1
37	.166	.33	.50	.66	.83	3.00	.16	.33	.49	30.0	60.0	89.9	19.9	49.8
38	.162	.33	.49	.64	.81	2.97	.13	.30	.46	29.7	59.4	9.1	8.8	8.5
39	.158	.32	.47	.63	.79	.95	.10	.26	.42	9.5	8.9	8.4	7.8	7.3
28 40	27.153	54.31	81.46	108.61	135.77	162.92	190.07	217.23	244.38	1629.2	3258.4	4887.6	6516.8	8146.0
41	.149	.30	.45	.59	.75	.89	.04	.20	.34	8.9	7.9	6.8	5.7	4.7
42	.145	.29	.43	.58	.73	.87	90.01	.16	.30	8.7	7.4	6.0	4.7	3.4
43	.140	.28	.42	.56	.70	.84	89.98	.13	.26	8.4	6.8	5.3	3.7	2.1
44	.136	.27	.41	.54	.68	.82	.95	.09	.22	8.2	6.3	4.5	2.6	40.8
28 45	27.132	54.27	81.40	108.53	135.66	162.79	189.92	217.06	244.18	1627.9	3255.8	4883.7	6511.6	8139.5
46	.127	.26	.38	.51	.64	.76	.89	7.02	.15	7.6	5.3	2.9	10.6	8.2
47	.123	.25	.37	.49	.62	.74	.86	6.99	.11	7.4	4.8	2.1	09.5	6.9
48	.119	.24	.36	.47	.59	.71	.83	.95	.07	7.1	4.2	1.4	8.5	5.6
49	.115	.23	.34	.46	.57	.69	.80	.92	4.03	6.9	3.7	80.6	7.5	4.4
28 50	27.110	54.22	81.33	108.44	135.55	162.66	189.77	216.88	243.99	1626.6	3253.2	4879.8	6506.4	8133.1
51	.106	.21	.32	.42	.53	.64	.74	.85	.95	6.4	2.7	9.1	5.4	1.8
52	.102	.20	.30	.41	.51	.61	.71	.81	.91	6.1	2.2	8.2	4.4	30.5
53	.097	.19	.29	.39	.48	.58	.68	.78	.87	5.8	1.6	7.5	3.3	29.2
54	.093	.18	.28	.37	.46	.56	.65	.74	.83	5.6	1.1	6.7	2.3	7.9
28 55	27.089	54.18	81.27	108.36	135.44	162.53	189.62	216.71	243.80	1625.3	3250.6	4875.9	6501.2	8126.6
56	.084	.17	.25	.34	.42	.51	.59	.68	.76	5.1	50.1	5.2	500.2	5.3
57	.080	.16	.24	.32	.40	.48	.56	.64	.72	4.8	49.6	4.3	499.2	4.0
58	.076	.15	.23	.30	.37	.45	.53	.61	.68	4.5	9.0	3.6	8.1	2.7
59	.071	.14	.21	.29	.35	.43	.50	.57	.64	4.3	8.5	2.8	7.1	1.4
28 60	27.067	54.13	81.20	108.27	135.33	162.40	189.47	216.54	243.60	1624.0	3248.0	4872.0	6496.1	8120.1

Lat.	Latitude 28° to 29°—Meridional arcs.						Latitude 28°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 28° 30'		Value of 1'	Continuous sums of minutes from latitude 28° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
28 00	30.782			1846.92					
1	2	1	30.78	.92	1	1 846.9	0 1	1 639.4	0.1
2	2	2	61.57	.93	2	3 693.8	2	3 278.8	0.4
3	2	3	92.35	.93	3	5 540.8	3	4 918.2	1.0
4	2	4	123.14	.94	4	7 387.7	4	6 557.6	1.8
28 05	30.782	5	153.92	1846.94	5	9 234.6	0 5	8 197.0	2.8
6	2	6	184.71	.95	6	11 081.6	6	9 836.4	4.0
7	2	7	215.49	.95	7	12 928.5	7	11 475.7	5.5
8	3	8	246.27	.95	8	14 775.5	8	13 115.1	7.2
9	3	9	277.06	.96	9	16 622.5	9	14 754.5	9.1
28 10	30.783	10	307.84	1846.96	10	18 469.4	0 10	16 393.9	11.2
11	3	1	338.63	.97	1	20 316.4	15	24 590.9	25.2
12	3	2	369.41	.97	2	22 163.3	20	32 787.9	44.8
13	3	3	400.20	.98	3	24 010.3	25	40 984.8	70.0
14	3	4	430.98	.98	4	25 857.3	30	49 181.7	100.7
28 15	30.783	15	461.76	1846.99	15	27 704.3	0 35	57 378.6	137.1
16	3	6	492.55	6.99	6	29 551.3	40	65 575.5	179.1
17	3	7	523.33	7.00	7	31 398.3	45	73 772.4	226.7
18	3	8	554.12	.00	8	33 245.3	50	81 969.2	279.8
19	3	9	584.90	.00	9	35 092.3	55	90 165.9	338.6
28 20	30.783	20	615.69	1847.01	20	36 939.3	1 00	98 362.6	403.0
21	4	1	646.47	.01	1	38 786.3	05	106 559.3	472.9
22	4	2	677.25	.02	2	40 633.3	10	114 756.0	548.5
23	4	3	708.04	.02	3	42 480.3	15	122 952.5	629.6
24	4	4	738.82	.03	4	44 327.4	20	131 149.0	716.4
28 25	30.784	25	769.61	1847.03	25	46 174.4	1 25	139 345.5	808.7
26	4	6	800.39	.04	6	48 021.4	30	147 541.9	906.7
27	4	7	831.17	.04	7	49 868.5	35	155 738.2	1 010.2
28	4	8	861.96	.05	8	51 715.5	40	163 934.5	1 119.4
29	4	9	892.74	.05	9	53 562.5	45	172 130.7	1 234.1
28 30	30.784	30	923.53	1847.06	30	55 409.6	1 50	180 326.8	1 354.4
31	4	1	954.31	.06	1	57 256.7	55	188 522.8	1 480.4
32	4	2	985.10	.06	2	59 103.7	2 00	196 719	1 612
33	4	3	1 015.88	.07	3	60 950.8	3 00	205 062	3 627
34	5	4	1 046.66	.07	4	62 797.9	4 00	393 385	6 447
28 35	30.785	35	1 077.45	1847.08	35	64 644.9	5 00	491 682	10 073
36	5	6	1 108.23	.08	6	66 492.0	6 00	589 945	14 505
37	5	7	1 139.02	.09	7	68 339.1	7 00	688 168	19 741
38	5	8	1 169.80	.09	8	70 186.2	8 00	786 347	25 782
39	5	9	1 200.59	.10	9	72 033.3	9 00	884 472	32 627
28 40	30.785	40	1 231.37	1847.10	40	73 880.4	10 00	982 537	40 276
41	5	1	1 262.15	.11	1	75 727.5	11 00	1 080 537	48 728
42	5	2	1 292.94	.11	2	77 574.6	12 00	1 178 464	57 983
43	5	3	1 323.72	.11	3	79 421.7	13 00	1 276 312	68 040
44	5	4	1 354.51	.12	4	81 268.8	14 00	1 374 075	78 899
28 45	30.785	45	1 385.29	1847.12	45	83 115.9	15 00	1 471 745	90 558
46	5	6	1 416.08	.13	6	84 963.1	16 00	1 569 315	103 017
47	6	7	1 446.86	.13	7	86 810.2	17 00	1 666 781	116 275
48	6	8	1 477.64	.14	8	88 657.3	18 00	1 764 135	130 331
49	6	9	1 508.43	.14	9	90 504.5	19 00	1 861 371	145 185
28 50	30.786	50	1 539.21	1847.15	50	92 351.6	20 00	1 958 481	160 835
51	6	1	1 570.00	.15	1	94 198.8	21 00	2 055 460	177 280
52	6	2	1 600.78	.16	2	96 045.9	22 00	2 152 302	194 518
53	6	3	1 631.57	.16	3	97 893.1	23 00	2 248 998	212 550
54	6	4	1 662.35	.17	4	99 740.2	24 00	2 345 544	231 374
28 55	30.786	55	1 693.13	1847.17	55	101 587.4	25 00	2 441 932	250 988
56	6	5	1 723.92	.17	5	103 434.6	26 00	2 538 156	271 391
57	6	7	1 754.70	.18	7	105 281.8	27 00	2 634 210	292 582
58	6	8	1 785.49	.18	8	107 128.9	28 00	2 730 087	314 559
59	6	9	1 816.27	.19	9	108 976.1	29 00	2 825 779	337 321
28 60	30.787	60	1 847.06	1847.19	60	110 823.3	30 00	2 921 284	360 866

Latitude 29° to 30°—arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
29 00	27.067	54.13	81.20	108.27	135.33	162.40	189.47	216.54	243.60	1624.0	3248.0	4872.0	6496.1	8120.1
1	.063	.12	.19	.25	.31	.38	.44	.50	.56	3.8	7.5	1.2	5.0	18.8
2	.058	.11	.17	.23	.29	.35	.41	.47	.52	3.5	7.0	70.4	4.0	7.5
3	.054	.11	.16	.22	.27	.32	.38	.43	.48	3.2	6.4	69.7	2.9	6.1
4	.049	.10	.15	.20	.25	.30	.35	.40	.44	3.0	5.9	8.9	1.9	4.8
29 05	27.045	54.09	81.13	108.18	135.22	162.27	189.31	216.36	243.40	1622.7	3245.4	4868.1	6490.8	8113.5
5	.041	.08	.12	.16	.20	.24	.28	.33	.37	2.4	4.9	7.3	89.8	2.2
7	.036	.07	.11	.14	.18	.22	.25	.29	.33	2.2	4.4	6.5	8.7	10.9
8	.032	.07	.10	.13	.16	.19	.22	.26	.29	1.9	3.8	5.8	7.7	09.6
9	.028	.06	.08	.11	.14	.17	.19	.22	.25	1.7	3.3	5.0	6.6	8.3
29 10	27.023	54.05	81.07	108.09	135.12	162.14	189.16	216.19	243.21	1621.4	3242.8	4864.2	6485.6	8107.0
11	.019	.04	.06	.07	.10	.11	.13	.15	.17	1.1	2.3	3.4	4.6	5.7
12	.015	.03	.04	.06	.08	.09	.10	.12	.13	0.9	1.8	2.6	3.5	4.4
13	.010	.02	.03	.04	.05	.06	.07	.08	.09	0.6	1.2	1.9	2.5	3.1
14	.006	.01	.02	.02	.03	.03	.04	.05	.05	0.3	0.7	1.1	1.4	1.7
29 15	27.001	54.00	81.00	108.00	135.01	162.01	189.01	216.01	243.02	1620.1	3240.2	4860.3	6480.4	8100.4
16	6.997	4.00	0.99	7.99	4.99	1.98	8.98	5.98	2.97	19.8	39.6	59.5	79.3	099.1
17	.993	3.99	.98	.97	.97	.96	.95	.94	.93	9.6	9.1	8.7	8.3	7.8
18	.988	.98	.97	.95	.94	.93	.92	.91	.90	9.3	8.6	7.9	7.2	6.5
19	.984	.97	.95	.94	.92	.90	.89	.87	.86	9.0	8.1	7.1	6.2	5.2
29 20	26.980	53.96	80.94	107.92	134.90	161.88	188.86	215.84	242.82	1618.8	3237.6	4856.3	6475.1	8093.9
21	.975	.95	.93	.90	.88	.85	.83	.80	.78	8.5	7.0	5.5	4.1	2.6
22	.971	.94	.91	.88	.85	.82	.80	.77	.74	8.2	6.5	4.7	3.0	91.2
23	.966	.93	.90	.87	.83	.80	.77	.73	.70	8.0	6.0	4.0	1.9	89.9
24	.962	.92	.89	.85	.81	.77	.74	.70	.66	7.7	5.4	3.2	70.9	8.5
29 25	26.958	53.91	80.87	107.83	134.79	161.75	188.70	215.66	242.62	1617.5	3234.9	4852.4	6469.8	8087.3
26	.953	.91	.86	.81	.77	.72	.67	.62	.58	7.2	4.4	1.6	8.8	6.0
27	.949	.90	.85	.79	.75	.69	.64	.59	.54	6.9	3.8	0.8	7.7	4.6
28	.944	.89	.83	.78	.72	.67	.61	.55	.50	6.7	3.3	50.0	6.6	3.3
29	.940	.88	.82	.76	.70	.64	.58	.52	.46	6.4	2.8	49.2	5.6	2.0
29 30	26.936	53.87	80.81	107.74	134.68	161.61	188.55	215.48	242.42	1616.1	3232.3	4848.4	6464.5	8080.7
31	.931	.86	.79	.72	.66	.59	.52	.45	.38	5.9	1.8	7.6	3.5	79.4
32	.927	.85	.78	.71	.64	.56	.49	.41	.34	5.6	1.2	6.8	2.4	8.0
33	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	0.7	6.0	1.4	6.7
34	.918	.83	.75	.67	.59	.51	.43	.34	.26	5.1	30.2	5.2	60.3	5.4
29 35	26.913	53.83	80.74	107.66	134.57	161.48	188.39	215.31	242.22	1614.8	3229.6	4844.4	6459.2	8074.0
36	.909	.82	.73	.64	.55	.45	.36	.27	.18	4.5	9.1	3.6	8.2	2.7
37	.905	.81	.71	.62	.53	.43	.33	.24	.14	4.3	8.6	2.8	7.1	1.4
38	.900	.80	.70	.60	.50	.40	.30	.20	.10	4.0	8.0	2.0	6.0	70.1
39	.896	.79	.69	.59	.48	.37	.27	.17	.06	3.7	7.5	1.2	5.0	68.7
29 40	26.891	53.78	80.67	107.57	134.46	161.35	188.24	215.13	242.02	1613.5	3227.0	4840.4	6453.9	8067.4
41	.887	.77	.66	.55	.44	.32	.21	.10	1.98	3.2	6.4	39.6	2.9	6.1
42	.882	.76	.65	.53	.41	.29	.18	.06	.94	2.9	5.9	8.8	1.8	4.7
43	.878	.75	.63	.51	.39	.27	.15	5.02	.90	2.7	5.4	8.0	50.7	3.4
44	.874	.75	.62	.50	.37	.24	.12	4.99	.86	2.4	4.8	7.2	49.7	2.1
29 45	26.869	53.74	80.61	107.48	134.35	161.21	188.08	214.95	241.82	1612.1	3224.3	4836.4	6448.6	8060.7
46	.865	.73	.59	.46	.33	.19	.05	.92	.78	1.9	3.8	5.6	7.5	59.4
47	.860	.72	.58	.44	.31	.16	8.02	.88	.74	1.6	3.2	4.8	6.5	8.1
48	.856	.71	.57	.43	.28	.13	7.99	.85	.70	1.3	2.7	4.1	5.4	6.7
49	.851	.70	.55	.41	.26	.11	.96	.81	.66	1.1	2.2	3.3	4.3	5.4
29 50	26.847	53.69	80.54	107.39	134.24	161.08	187.93	214.78	241.62	1610.8	3221.6	4832.5	6443.3	8054.1
51	.842	.68	.53	.37	.21	.05	.90	.74	.58	0.5	1.1	1.7	2.2	2.7
52	.838	.67	.51	.35	.19	.03	.87	.70	.54	0.3	0.6	0.9	1.1	1.4
53	.834	.67	.50	.34	.17	1.00	.84	.67	.50	10.0	20.0	30.0	40.1	50.1
54	.829	.66	.49	.32	.15	0.97	.81	.63	.46	09.7	19.5	29.2	39.0	48.7
29 55	26.825	53.65	80.47	107.30	134.12	160.95	187.77	214.60	241.42	1609.5	3219.0	4828.4	6437.9	8047.4
56	.820	.64	.46	.28	.10	.92	.74	.56	.38	9.2	8.4	7.6	6.8	6.0
57	.816	.63	.45	.26	.08	.89	.71	.53	.34	8.9	7.9	6.8	5.8	4.7
58	.811	.62	.43	.25	.06	.87	.68	.49	.30	8.7	7.4	6.0	4.7	3.4
59	.807	.61	.42	.23	.03	.84	.65	.45	.26	8.4	6.8	5.2	3.6	2.0
29 60	26.802	53.60	80.41	107.21	134.01	160.81	187.62	214.42	241.22	1608.1	3216.3	4824.4	6432.5	8040.7

Lat.	Latitude 29° to 30°—Meridional arcs.						Latitude 29°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 29° 30'		Value of 1'	Continuous sums of minutes from latitude 29° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
29 00	30.787			1847.19			0 1	1 624.0	0.1
1	7	1	30.79	.20	1	1 847.2	0 2	3 248.0	0.5
2	7	2	61.58	.20	2	3 694.4	0 3	4 872.0	1.0
3	7	3	92.37	.21	3	5 541.6	0 4	6 496.1	1.8
4	7	4	123.16	.21	4	7 388.8	0 5	8 120.1	2.9
29 05	30.787	5	153.94	1847.22	5	9 236.0	0 6	9 744.1	4.1
6	7	6	184.73	.22	6	11 083.2	0 7	11 368.1	5.6
7	7	7	215.52	.23	7	12 930.5	0 8	12 992.1	7.3
8	7	8	246.31	.23	8	14 777.7	0 9	14 616.1	9.3
9	7	9	277.10	.24	9	16 624.9			
29 10	30.787	10	307.89	1847.24	10	18 472.2	0 10	16 240.1	11.5
11	7	1	338.68	.24	1	20 319.4	0 15	24 360.2	25.8
12	7	2	369.47	.25	2	22 166.7	0 20	32 480.2	45.8
13	8	3	400.26	.25	3	24 013.9	0 25	40 600.2	71.6
14	8	4	431.04	.26	4	25 861.2	0 30	48 720.3	103.1
29 15	30.788	15	461.83	1847.26	15	27 708.4	0 35	56 840.2	140.3
16	8	6	492.62	.27	6	29 555.7	0 40	64 960.2	183.2
17	8	7	523.41	.27	7	31 403.0	0 45	73 080.1	231.9
18	8	8	554.20	.28	8	33 250.2	0 50	81 200.0	286.3
19	8	9	584.99	.28	9	35 097.5	0 55	89 319.8	346.4
29 20	30.788	20	615.78	1847.29	20	36 944.8	1 00	97 439.6	412.2
21	8	1	646.57	.29	1	38 792.1	0 05	105 559.4	483.8
22	8	2	677.36	.30	2	40 639.4	0 10	113 679.1	561.1
23	8	3	708.14	.30	3	42 486.7	0 15	121 798.7	644.1
24	8	4	738.93	.31	4	44 334.0	0 20	129 918.3	732.9
29 25	30.788	25	769.72	1847.31	25	46 181.3	1 25	138 037.8	827.4
26	9	6	800.51	.31	6	48 028.6	0 30	146 157.3	927.6
27	9	7	831.30	.32	7	49 875.9	0 35	154 276.7	1 033.5
28	9	8	862.09	.32	8	51 723.2	0 40	162 396.0	1 145.1
29	9	9	892.88	.33	9	53 570.6	0 45	170 515.2	1 262.5
29 30	30.789	30	923.67	1847.33	30	55 417.9	1 50	178 634.3	1 385.6
31	9	1	954.46	.34	1	57 265.2	0 55	186 753.4	1 514.4
32	9	2	985.24	.34	2	59 112.6	2 00	194 872	1 649
33	9	3	1 016.03	.35	3	60 959.9	3 00	292 291	3 710
34	9	4	1 046.82	.35	4	62 807.3	4 00	389 689	6 595
29 35	30.789	35	1 077.61	1847.36	35	64 654.6	5 00	487 059	10 305
36	9	6	1 108.40	.36	6	66 502.0	6 00	584 394	14 838
37	9	7	1 139.19	.37	7	68 349.3	7 00	681 687	20 194
38	90	8	1 169.98	.37	8	70 196.7	8 00	778 931	26 374
39	0	9	1 200.77	.38	9	72 044.1	9 00	876 120	33 376
29 40	30.790	40	1 231.56	1847.38	40	73 891.5	10 00	973 246	41 199
41	0	1	1 262.34	.38	1	75 738.9	11 00	1 070 302	49 845
42	0	2	1 293.13	.39	2	77 586.2	12 00	1 167 282	59 313
43	0	3	1 323.92	.39	3	79 433.6	13 00	1 264 178	69 601
44	0	4	1 354.71	.40	4	81 281.0	14 00	1 360 983	80 706
29 45	30.790	45	1 385.50	1847.40	45	83 128.4	15 00	1 457 691	92 631
46	0	6	1 416.29	.41	6	84 975.8	16 00	1 554 295	105 375
47	0	7	1 447.08	.41	7	86 823.2	17 00	1 650 787	118 935
48	0	8	1 477.87	.42	8	88 670.7	18 00	1 747 161	133 311
49	0	9	1 508.66	.42	9	90 518.1	19 00	1 843 410	148 502
29 50	30.790	50	1 539.44	1847.43	50	92 365.5	20 00	1 939 527	164 506
51	1	1	1 570.23	.43	1	94 212.9	21 00	2 035 505	181 324
52	1	2	1 601.02	.44	2	96 060.4	22 00	2 131 338	198 953
53	1	3	1 631.81	.44	3	97 907.8	23 00	2 227 020	217 392
54	1	4	1 662.60	.45	4	99 755.3	24 00	2 322 539	236 640
29 55	30.791	55	1 693.39	1847.45	55	101 602.7	25 00	2 417 893	256 695
56	1	6	1 724.18	.46	6	103 450.2	26 00	2 513 074	277 558
57	1	7	1 754.97	.46	7	105 297.6	27 00	2 608 075	299 224
58	1	8	1 785.76	.46	8	107 145.1	28 00	2 702 890	321 694
59	1	9	1 816.54	.47	9	108 992.5	29 00	2 797 511	344 964
60	30.791	60	1 847.33	1847.47	60	110 840.0	30 00	2 891 931	369 036

Latitude 30° to 31°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
30 00	26.802	53.60	80.41	107.21	134.01	160.81	187.62	214.42	241.22	1608.1	3216.3	4824.4	6432.5	8040.7
1	.708	.59	.39	.19	3.99	.79	.59	.38	.18	7.9	5.7	3.6	1.4	39.3
2	.793	.58	.38	.17	.97	.76	.56	.35	.14	7.6	5.2	2.8	30.4	8.0
3	.789	.57	.37	.16	.94	.73	.52	.31	.10	7.3	4.6	2.0	29.3	6.6
4	.784	.56	.35	.14	.92	.71	.49	.28	.06	7.1	4.1	1.2	8.3	5.3
30 05	26.780	53.55	80.34	107.12	133.90	160.68	187.46	214.24	241.02	1606.8	3213.6	4820.4	6427.2	8033.9
6	.775	.55	.33	.10	.88	.65	.43	.20	0.98	6.5	3.0	19.6	6.1	2.6
7	.771	.54	.31	.08	.86	.62	.40	.17	.94	6.2	2.5	8.8	5.0	31.3
8	.766	.53	.30	.07	.83	.60	.36	.13	.90	6.0	2.0	7.9	4.0	29.9
9	.762	.52	.29	.05	.81	.57	.33	.10	.86	5.7	1.4	7.1	2.9	8.6
30 10	26.757	53.51	80.27	107.03	133.79	160.54	187.30	214.06	240.82	1605.4	3210.9	4816.3	6421.8	8027.2
11	.753	.50	.26	7.01	.77	.52	.27	4.02	.78	5.2	10.4	5.5	20.7	5.9
12	.748	.49	.24	6.99	.74	.49	.24	3.99	.74	4.9	09.8	4.7	19.6	4.5
13	.744	.48	.23	.98	.72	.46	.21	.95	.70	4.6	9.3	3.9	8.6	3.2
14	.739	.47	.22	.96	.70	.44	.18	.92	.65	4.4	8.7	3.1	7.5	1.8
30 15	26.735	53.46	80.20	106.94	133.68	160.41	187.14	213.88	240.61	1604.1	3208.2	4812.3	6416.4	8020.4
16	.730	.46	.19	.92	.65	.38	.11	.84	.57	3.8	7.6	1.5	5.3	19.1
17	.726	.45	.18	.90	.63	.35	.08	.81	.53	3.5	7.1	10.7	4.2	7.7
18	.721	.44	.16	.89	.61	.33	.05	.77	.49	3.3	6.6	09.8	3.1	6.4
19	.717	.43	.15	.87	.58	.30	7.02	.73	.45	3.0	6.0	9.0	2.0	5.0
30 20	26.712	53.42	80.14	106.85	133.56	160.27	186.99	213.70	240.41	1602.7	3205.5	4808.2	6410.9	8013.7
21	.708	.41	.12	.83	.54	.24	.96	.66	.37	2.4	4.9	7.4	09.8	2.3
22	.703	.40	.11	.81	.52	.22	.93	.63	.33	2.2	4.4	6.6	8.7	11.0
23	.699	.39	.10	.80	.49	.19	.89	.59	.29	1.9	3.8	5.7	7.7	09.6
24	.694	.38	.08	.78	.47	.16	.86	.56	.25	1.6	3.3	4.9	6.6	8.2
30 25	26.690	53.37	80.07	106.76	133.45	160.14	186.83	213.52	240.21	1601.4	3202.8	4804.1	6405.5	8006.9
26	.685	.37	.06	.74	.43	.11	.80	.48	.16	1.1	2.2	3.3	4.4	5.5
27	.681	.36	.04	.72	.41	.08	.77	.45	.13	0.8	1.6	2.5	3.3	4.2
28	.676	.35	.03	.71	.38	.06	.73	.41	.08	0.6	1.1	1.6	2.3	2.8
29	.671	.34	.01	.69	.36	.03	.70	.38	.04	0.3	0.6	0.8	1.2	1.4
30 30	26.667	53.33	80.00	106.67	133.34	160.00	186.67	213.34	240.00	1600.0	3200.0	4800.0	6400.1	8000.1
31	.662	.32	79.99	.65	.32	59.97	.64	.30	39.96	599.7	199.5	799.2	399.0	7998.7
32	.658	.31	.97	.63	.29	.95	.61	.27	.92	9.5	8.9	8.4	7.9	7.3
33	.653	.30	.96	.62	.27	.92	.57	.23	.88	9.2	8.4	7.5	6.8	6.0
34	.649	.29	.95	.60	.25	.89	.54	.19	.84	8.9	7.8	6.7	5.7	4.6
30 35	26.644	53.29	79.93	106.58	133.22	159.86	186.51	213.15	239.80	1598.6	3197.3	4795.9	6394.6	7993.2
36	.640	.28	.92	.56	.20	.84	.48	.12	.76	8.4	6.8	5.1	3.5	1.9
37	.635	.27	.90	.54	.18	.81	.45	.08	.71	8.1	6.2	4.3	2.4	90.5
38	.630	.26	.89	.52	.16	.78	.41	.04	.67	7.8	5.7	3.4	1.3	89.1
39	.626	.25	.88	.51	.13	.76	.38	3.01	.63	7.6	5.1	2.6	90.2	7.8
30 40	26.621	53.24	79.86	106.49	133.11	159.73	186.35	212.97	239.59	1597.3	3194.6	4791.8	6389.1	7986.4
41	.617	.23	.85	.47	.09	.70	.32	.93	.55	7.0	4.0	1.0	8.0	5.0
42	.612	.22	.84	.45	.06	.67	.29	.90	.51	6.7	3.5	90.2	6.9	3.6
43	.608	.21	.82	.43	.04	.65	.25	.86	.47	6.5	2.9	89.3	5.8	2.3
44	.603	.20	.81	.41	.02	.62	.22	.82	.43	6.2	2.4	8.5	4.7	80.9
30 45	26.598	53.19	79.80	106.40	133.00	159.59	186.19	212.79	239.39	1595.9	3191.8	4787.7	6383.6	7979.5
46	.594	.19	.78	.38	2.97	.56	.16	.75	.35	5.6	1.3	6.9	2.5	8.2
47	.589	.18	.77	.36	.95	.53	.13	.71	.30	5.3	0.7	6.1	1.4	6.8
48	.585	.17	.75	.34	.93	.51	.09	.68	.26	5.1	90.2	5.2	80.3	5.4
49	.580	.16	.74	.32	.90	.48	.06	.64	.22	4.8	89.6	4.4	79.2	4.0
30 50	26.576	53.15	79.73	106.30	132.88	159.45	186.03	212.60	239.18	1594.5	3189.1	4783.6	6378.1	7972.7
51	.571	.14	.71	.28	.86	.42	6.00	.57	.14	4.2	8.5	2.8	7.0	71.3
52	.566	.13	.70	.26	.83	.40	5.97	.53	.10	4.0	8.0	2.0	5.9	69.9
53	.562	.12	.69	.25	.81	.37	.93	.49	.06	3.7	7.4	1.1	4.8	8.5
54	.557	.11	.67	.23	.79	.34	.90	.46	9.01	3.4	6.9	4780.3	3.7	7.1
30 55	26.553	53.10	79.66	106.21	132.76	159.32	185.87	212.42	238.97	1593.2	3186.3	4779.5	6372.6	7965.8
56	.548	.10	.64	.19	.74	.29	.84	.38	.93	2.9	5.8	8.7	1.5	4.4
57	.543	.09	.63	.17	.72	.26	.81	.35	.89	2.6	5.2	7.8	70.4	3.0
58	.539	.08	.62	.16	.70	.23	.77	.31	.85	2.3	4.6	7.0	69.3	1.6
59	.534	.07	.60	.14	.67	.21	.74	.27	.81	2.1	4.1	6.1	8.2	60.2
30 60	26.530	53.06	79.59	106.12	132.65	159.18	185.71	212.24	238.77	1591.8	3183.5	4775.3	6367.1	7958.9

Lat.	Latitude 30° to 31°—Meridional arcs.						Latitude 30°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 30° 30'		Value of 1'	Continuous sums of minutes from latitude 30° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
30 00	30.791			1847.47			0 1	1 608.1	0.1
1	1	1	30.79	.48	1	1 847.5	0 2	3 216.3	0.5
2	1	2	61.59	.48	2	3 695.0	3	4 824.4	1.1
3	1	3	92.38	.49	3	5 542.4	4	6 432.6	1.9
4	2	4	123.17	.49	4	7 389.9	0 5	8 040.7	2.9
30 05	30.792	5	153.97	1847.50	5	9 237.4	0 6	9 648.8	4.2
5	2	6	184.76	.50	6	11 084.9	7	11 257.0	5.7
7	2	7	215.56	.51	7	12 932.4	8	12 865.1	7.5
8	2	8	246.35	.51	8	14 779.9	9	14 473.2	9.5
9	2	9	277.14	.52	9	16 627.4	0 10	16 081.4	11.7
30 10	30.792	10	307.94	1847.52	10	18 475.0	15	24 122.0	26.3
11	2	1	338.73	.53	1	20 322.5	20	32 162.7	46.8
12	2	2	369.52	.53	2	22 170.0	25	40 203.3	73.1
13	2	3	400.32	.54	3	24 017.5	30	48 244.0	105.3
14	2	4	431.11	.54	4	25 865.1	0 35	56 284.6	143.3
30 15	30.792	15	461.90	1847.55	15	27 712.6	40	64 325.1	187.1
16	3	6	492.70	.55	6	29 560.2	45	72 365.6	236.8
17	3	7	523.49	.56	7	31 407.7	50	80 406.1	292.4
18	3	8	554.29	.56	8	33 255.3	55	88 446.6	353.8
19	3	9	585.08	.56	9	35 102.8	1 00	96 487.0	421.0
30 20	30.793	20	615.87	1847.57	20	36 950.4	05	104 527.3	494.1
21	3	1	646.67	.57	1	38 798.0	10	112 567.6	573.0
22	3	2	677.46	.58	2	40 645.5	15	120 607.9	657.8
23	3	3	708.25	.58	3	42 493.1	20	128 648.0	748.4
24	3	4	739.05	.59	4	44 340.7	1 25	136 688.1	844.9
30 25	30.793	25	769.84	1847.59	25	46 188.3	30	144 728.2	947.3
26	3	6	800.63	.60	6	48 035.9	35	152 768.2	1 055.4
27	3	7	831.43	.60	7	49 883.5	40	160 808.0	1 169.4
28	3	8	862.22	.61	8	51 731.1	45	168 847.8	1 289.3
29	4	9	893.01	.61	9	53 578.7	1 50	176 887.5	1 415.0
30 30	30.794	30	923.81	1847.62	30	55 426.3	55	184 927.1	1 546.6
31	4	1	954.60	.62	1	57 273.9	00	192 967	1 684
32	4	2	985.40	.63	2	59 121.6	05	289 432	3 789
33	4	3	1 016.19	.63	3	60 969.2	10	385 875	6 735
34	4	4	1 046.98	.64	4	62 816.8	15	482 288	10 523
30 35	30.794	35	1 077.78	1847.64	35	64 664.5	20	578 665	15 153
36	4	5	1 108.57	.65	5	66 512.1	25	674 998	20 623
37	4	6	1 139.36	.65	6	68 359.8	30	771 279	26 934
38	4	7	1 170.16	.66	7	70 207.4	35	867 502	34 084
39	4	8	1 200.95	.66	8	72 055.1	40	963 658	42 074
30 40	30.794	40	1 231.74	1847.66	40	73 902.7	45	1 059 741	50 903
41	4	9	1 262.54	.67	9	75 750.4	50	1 155 744	60 570
42	5	1	1 293.33	.67	1	77 598.1	55	1 251 658	71 074
43	5	2	1 324.13	.68	2	79 445.8	00	1 347 477	82 415
44	5	3	1 354.92	.68	3	81 293.4	05	1 443 193	94 591
30 45	30.795	45	1 385.71	1847.69	45	83 141.1	10	1 538 800	107 603
46	5	4	1 416.51	.69	4	84 988.8	15	1 634 290	121 449
47	5	5	1 447.30	.70	5	86 836.5	20	1 729 654	136 127
48	5	6	1 478.09	.70	6	88 684.2	25	1 824 887	151 637
49	5	7	1 508.89	.71	7	90 531.9	30	1 919 982	167 977
30 50	30.795	50	1 539.68	1847.71	50	92 379.6	35	2 014 930	185 147
51	5	8	1 570.47	.72	8	94 227.4	40	2 109 725	203 143
52	5	9	1 601.27	.72	9	96 075.1	45	2 204 359	221 966
53	5	1	1 632.06	.73	1	97 922.8	50	2 298 825	241 616
54	5	2	1 662.86	.73	2	99 770.5	55	2 393 116	262 089
30 55	30.796	55	1 693.65	1847.74	55	101 618.3	00	2 487 224	283 383
56	6	3	1 724.44	.74	3	103 466.0	05	2 581 144	305 498
57	6	4	1 755.24	.75	4	105 313.7	10	2 674 867	328 432
58	6	5	1 786.03	.75	5	107 161.5	15	2 768 385	352 183
59	6	6	1 816.82	.76	6	109 009.2	20	2 861 694	376 749
30 60	30.796	60	1 847.62	.76	60	110 857.0	25		

Latitude 31° to 32°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
31 00	26.530	53.06	79.59	106.12	132.65	159.18	185.71	212.24	238.77	1591.8	3183.5	4775.3	6367.1	7958.9
1	.525	.05	.58	.10	.63	.15	.68	.20	.73	1.5	3.0	4.5	6.0	7.5
2	.520	.04	.56	.08	.60	.12	.64	.16	.68	1.2	2.4	3.6	4.9	6.1
3	.516	.03	.55	.06	.58	.09	.61	.13	.64	0.9	1.9	2.8	3.8	4.7
4	.511	.02	.53	.04	.56	.07	.55	.09	.60	0.7	1.3	1.9	2.6	3.3
31 05	26.506	53.02	79.52	106.03	132.53	159.04	185.55	212.05	238.56	1590.4	3180.8	4771.1	6361.5	7951.9
6	.502	.01	.51	6.01	.51	9.01	.51	2.01	.52	90.1	80.2	70.3	60.4	50.5
7	.497	3.00	.49	5.99	.49	8.98	.48	1.98	.48	89.8	79.7	69.5	59.3	49.1
8	.493	2.99	.48	.97	.47	.96	.45	.94	.43	9.6	9.1	8.6	8.2	7.8
9	.488	.98	.46	.95	.44	.93	.41	.90	.39	9.3	8.6	7.8	7.1	6.4
31 10	26.483	52.97	79.45	105.93	132.42	158.90	185.38	211.87	238.35	1589.0	3178.0	4767.0	6356.0	7945.0
11	.479	.96	.44	.91	.39	.87	.35	.83	.31	8.7	7.4	6.2	4.9	3.6
12	.474	.95	.42	.90	.37	.84	.32	.79	.27	8.4	6.9	5.3	3.8	2.2
13	.469	.94	.41	.88	.35	.82	.28	.75	.22	8.2	6.3	4.5	2.6	40.8
14	.465	.93	.39	.86	.32	.79	.25	.72	.18	7.9	5.8	3.6	1.5	39.4
31 15	26.460	52.92	79.38	105.84	132.30	158.76	185.22	211.68	238.14	1587.6	3175.2	4762.8	6350.4	7938.0
16	.455	.91	.37	.82	.28	.73	.19	.64	.10	7.3	4.6	2.0	49.3	6.6
17	.451	.90	.35	.80	.25	.70	.16	.61	.06	7.0	4.1	1.1	8.2	5.2
18	.446	.89	.34	.78	.23	.68	.12	.57	8.01	6.8	3.5	60.3	7.1	3.8
19	.441	.88	.32	.77	.21	.65	.09	.53	7.97	6.5	3.0	59.4	5.9	2.4
31 20	26.437	52.87	79.31	105.75	132.18	158.62	185.06	211.49	237.93	1586.2	3172.4	4758.6	6344.8	7931.0
21	.432	.86	.30	.73	.16	.59	5.03	.46	.89	5.9	1.8	7.8	3.7	29.6
22	.427	.85	.28	.71	.13	.56	4.99	.42	.85	5.6	1.3	6.9	2.6	8.2
23	.423	.84	.27	.69	.11	.54	.96	.38	.80	5.4	0.7	6.1	1.5	6.8
24	.418	.83	.25	.67	.09	.51	.93	.34	.76	5.1	70.2	5.2	40.3	5.4
31 25	26.413	52.83	79.24	105.65	132.06	158.48	184.89	211.31	237.72	1584.8	3169.6	4754.4	6339.2	7924.0
26	.409	.82	.23	.63	.04	.45	.86	.27	.68	4.5	9.0	3.6	8.1	2.6
27	.404	.81	.21	.62	.02	.42	.83	.23	.64	4.2	8.5	2.7	7.0	21.2
28	.399	.80	.20	.60	2.00	.40	.80	.20	.59	4.0	7.9	1.9	5.9	19.8
29	.395	.79	.18	.58	1.97	.37	.76	.16	.55	3.7	7.4	1.0	4.7	8.4
31 30	26.390	52.78	79.17	105.56	131.95	158.34	184.73	211.12	237.51	1583.4	3166.8	4750.2	6333.6	7917.0
31	.385	.77	.16	.54	.93	.31	.70	.08	.47	3.1	6.2	49.4	2.5	5.6
32	.381	.76	.14	.52	.90	.28	.66	.05	.43	2.8	5.7	8.5	1.4	4.2
33	.376	.75	.13	.50	.88	.26	.63	1.01	.38	2.6	5.1	7.7	30.2	2.8
34	.371	.74	.11	.49	.86	.23	.60	0.97	.34	2.3	4.6	6.8	29.1	1.4
31 35	26.367	52.74	79.10	105.47	131.84	158.20	184.56	210.93	237.30	1582.0	3164.0	4746.0	6328.0	7910.0
36	.362	.73	.09	.45	.81	.17	.53	.90	.26	1.7	3.4	5.2	6.9	08.6
37	.357	.72	.07	.43	.79	.14	.50	.86	.22	1.4	2.9	4.3	5.7	7.2
38	.353	.71	.06	.41	.77	.12	.47	.82	.17	1.2	2.3	3.5	4.6	5.8
39	.348	.70	.04	.39	.74	.09	.43	.78	.13	0.9	1.8	2.6	3.5	4.4
31 40	26.343	52.69	79.03	105.37	131.72	158.06	184.40	210.75	237.09	1580.6	3161.2	4741.8	6322.4	7903.0
41	.338	.68	.02	.35	.69	.03	.37	.71	.05	0.3	0.6	0.9	1.2	1.5
42	.334	.67	9.00	.33	.67	8.00	.33	.67	7.00	80.0	60.0	40.1	20.1	900.1
43	.329	.66	8.99	.32	.65	7.98	.30	.63	6.96	79.8	59.5	39.2	19.0	898.7
44	.324	.65	.97	.30	.62	.95	.27	.59	.92	9.5	8.9	8.4	7.8	7.3
31 45	26.320	52.64	78.96	105.28	131.60	157.92	184.24	210.56	236.87	1579.2	3158.3	4737.5	6316.7	7895.9
46	.315	.63	.95	.26	.58	.89	.20	.52	.83	8.9	7.8	6.7	5.6	4.5
47	.310	.62	.93	.24	.55	.86	.17	.48	.79	8.6	7.2	5.8	4.4	3.0
48	.305	.61	.92	.22	.53	.84	.14	.44	.75	8.4	6.6	5.0	3.3	1.6
49	.301	.60	.90	.20	.50	.80	.11	.41	.70	8.0	6.1	4.1	2.2	90.2
31 50	26.296	52.59	78.89	105.18	131.48	157.78	184.07	210.37	236.66	1577.8	3155.5	4733.3	6311.0	7888.8
51	.291	.58	.87	.16	.46	.75	.04	.33	.62	7.5	4.9	2.4	09.9	7.4
52	.287	.57	.86	.15	.43	.72	4.00	.29	.58	7.2	4.4	1.6	8.8	6.0
53	.282	.56	.85	.13	.41	.69	3.97	.25	.53	6.9	3.8	30.7	7.6	4.5
54	.277	.55	.83	.11	.38	.66	.94	.22	.49	6.6	3.3	29.9	6.5	83.1
31 55	26.272	52.55	78.82	105.09	131.36	157.63	183.90	210.18	236.45	1576.3	3152.7	4729.0	6305.4	7881.7
56	.268	.54	.80	.07	.34	.61	.87	.14	.41	6.1	2.1	8.2	4.2	80.3
57	.263	.53	.79	.05	.31	.58	.84	.10	.37	5.8	1.5	7.3	3.1	78.9
58	.258	.52	.77	.03	.29	.55	.81	.07	.32	5.5	1.0	6.5	2.0	7.4
59	.253	.51	.76	5.01	.26	.52	.77	10.03	.28	5.2	50.4	5.6	300.8	6.0
31 60	26.249	52.50	78.75	104.99	131.24	157.49	183.74	209.99	236.24	1574.9	3149.8	4724.8	6299.7	7874.6

Lat.	Latitude 31° to 32°—Meridional arcs.						Latitude 31°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 31° 30'		Value of 1'	Continuous sums of minutes from latitude 31° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
31 00	30.796			1847.76					
1	6	1	30.80	.77	1	1 847.8	0 1	1 591.8	0.1
2	6	2	61.60	.77	2	3 695.5	2	3 183.5	0.5
3	6	3	92.40	.78	3	5 543.3	3	4 775.3	1.1
4	6	4	123.19	.78	4	7 391.1	4	6 367.1	1.9
31 05	30.796	5	153.99	1847.79	5	9 238.9	0 5	7 958.9	3.0
6	7	6	184.79	.79	6	11 086.7	6	9 550.6	4.3
7	7	7	215.59	.80	7	12 934.4	7	11 142.4	5.8
8	7	8	246.39	.80	8	14 782.2	8	12 734.2	7.6
9	7	9	277.19	.80	9	16 630.0	9	14 325.9	9.7
31 10	30.797	10	307.98	1847.81	10	18 477.9	0 10	15 917.7	11.9
11	7	1	338.78	.81	1	20 325.7	15	23 876.5	26.8
12	7	2	369.58	.82	2	22 173.5	20	31 835.4	47.7
13	7	3	400.38	.82	3	24 021.3	25	39 794.2	74.5
14	7	4	431.18	.83	4	25 869.1	30	47 753.0	107.3
31 15	30.797	15	461.98	1847.83	15	27 717.0	0 35	55 711.7	146.1
16	7	5	492.78	.84	5	29 564.8	40	63 670.4	190.8
17	7	7	523.57	.84	7	31 412.6	45	71 629.2	241.5
18	7	8	554.37	.85	8	33 260.5	50	79 587.8	298.1
19	8	9	585.17	.85	9	35 108.3	55	87 546.4	360.7
31 20	30.798	20	615.97	1847.86	20	36 956.2	1 00	95 505.0	429.3
21	8	1	646.77	.86	1	38 804.0	05	103 463.5	503.8
22	8	2	677.57	.87	2	40 651.9	10	111 421.9	584.3
23	8	3	708.36	.87	3	42 499.8	15	119 380.3	670.7
24	8	4	739.16	.88	4	44 347.7	20	127 338.6	763.1
31 25	30.798	25	769.96	1847.88	25	46 195.5	1 25	135 296.9	861.5
26	8	5	800.76	.89	5	48 043.4	30	143 255.1	965.8
27	8	7	831.56	.89	7	49 891.3	35	151 213.1	1 076.1
28	8	8	862.36	.90	8	51 739.2	40	159 171.1	1 192.4
29	8	9	893.15	.90	9	53 587.1	45	167 129.0	1 314.6
31 30	30.798	30	923.95	1847.91	30	55 435.0	1 50	175 086.8	1 442.8
31	9	1	954.75	.91	1	57 282.9	55	183 044.6	1 576.9
32	9	2	985.55	.92	2	59 130.8	2 00	191 002	1 717
33	9	3	1 016.35	.92	3	60 978.8	3 00	286 484	3 863
34	9	4	1 047.15	.93	4	62 826.7	4 00	381 943	6 867
31 35	30.799	35	1 077.95	1847.93	35	64 674.6	5 00	477 371	10 729
36	9	5	1 108.74	.94	5	66 522.5	6 00	572 760	15 450
37	9	7	1 139.54	.94	7	68 370.5	7 00	668 103	21 027
38	9	8	1 170.34	.95	8	70 218.4	8 00	763 392	27 461
39	9	9	1 201.14	.95	9	72 066.4	9 00	858 619	34 751
31 40	30.799	40	1 231.94	1847.96	40	73 914.3	10 00	953 777	42 897
41	9	1	1 262.74	.96	1	75 762.3	11 00	1 048 858	51 898
42	799	2	1 293.53	.97	2	77 610.2	12 00	1 143 854	61 753
43	800	3	1 324.33	.97	3	79 458.2	13 00	1 238 758	72 462
44	0	4	1 355.13	.98	4	81 306.2	14 00	1 333 561	84 024
31 45	30.800	45	1 385.93	1847.98	45	83 154.2	15 00	1 428 257	96 437
46	0	5	1 416.73	.98	5	85 002.1	16 00	1 522 837	109 701
47	0	7	1 447.53	.99	7	86 850.1	17 00	1 617 294	123 815
48	0	8	1 478.33	7.99	8	88 698.1	18 00	1 711 621	138 777
49	0	9	1 509.12	1848.00	9	90 546.1	19 00	1 805 810	154 586
31 50	30.800	50	1 539.92	1848.00	50	92 394.1	20 00	1 899 852	171 241
51	0	1	1 570.72	.01	1	94 242.1	21 00	1 993 740	188 741
52	0	2	1 601.52	.01	2	96 090.1	22 00	2 087 468	207 085
53	0	3	1 632.32	.02	3	97 938.2	23 00	2 181 027	226 270
54	0	4	1 663.12	.02	4	99 786.2	24 00	2 274 411	246 295
31 55	30.800	55	1 693.91	1848.03	55	101 634.2	25 00	2 367 610	267 159
56	1	5	1 724.71	.03	5	103 482.2	26 00	2 460 618	288 860
57	1	7	1 755.51	.04	7	105 330.3	27 00	2 553 427	311 396
58	1	8	1 786.31	.04	8	107 178.3	28 00	2 646 029	334 765
59	1	9	1 817.11	.05	9	109 026.4	29 00	2 738 418	358 966
31 60	30.801	60	1 847.91	1848.05	60	110 874.4	30 00	2 830 585	383 997

Latitude 32° to 33°—Arcs of the Parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
32 00	26.240	52.50	78.75	104.99	131.24	157.49	183.74	209.99	236.24	1574.9	3149.8	4724.8	6299.7	7874.6
1	.244	.49	.73	.98	.22	.46	.71	.95	.20	4.6	9.3	3.9	8.5	3.2
2	.239	.48	.72	.96	.19	.43	.67	.91	.15	4.3	8.7	3.1	7.4	1.7
3	.234	.47	.70	.94	.17	.41	.64	.87	.11	4.1	8.1	2.2	6.2	70.3
4	.230	.46	.69	.92	.15	.38	.61	.84	.07	3.8	7.6	1.4	5.1	68.9
32 05	26.225	52.45	78.67	104.90	131.12	157.35	183.57	209.80	236.02	1573.5	3147.0	4720.5	6294.0	7867.4
6	.220	.44	.66	.88	.10	.32	.54	.76	5.98	3.2	6.4	19.6	2.8	6.0
7	.215	.43	.65	.86	.08	.29	.51	.72	.94	2.9	5.8	8.8	1.7	4.6
8	.211	.42	.63	.84	.06	.26	.48	.68	.90	2.6	5.3	7.9	90.5	3.2
9	.206	.41	.62	.82	.03	.23	.44	.65	.85	2.3	4.7	7.1	89.4	1.7
32 10	26.201	52.40	78.60	104.80	131.01	157.21	183.41	209.61	235.81	1572.1	3144.1	4716.2	6288.3	7860.3
11	.196	.39	.59	.79	0.99	.18	.38	.57	.77	1.8	3.6	5.3	7.1	58.9
12	.191	.38	.57	.77	.96	.15	.34	.53	.72	1.5	3.0	4.5	6.0	7.4
13	.187	.37	.56	.75	.94	.12	.31	.49	.68	1.2	2.4	3.6	4.8	6.0
14	.182	.36	.55	.73	.91	.09	.27	.46	.64	0.9	1.9	2.8	3.7	4.6
32 15	26.177	52.35	78.53	104.71	130.89	157.06	183.24	209.42	235.59	1570.6	3141.3	4711.9	6282.5	7853.1
16	.172	.34	.52	.69	.87	.03	.21	.38	.55	0.3	0.7	1.0	1.4	1.7
17	.168	.34	.50	.67	.84	7.01	.17	.34	.51	70.1	40.1	10.2	80.2	50.3
18	.163	.33	.49	.65	.82	6.98	.14	.30	.47	69.8	39.5	09.3	79.1	48.8
19	.158	.32	.47	.63	.79	.95	.10	.26	.42	9.5	9.0	8.5	7.9	7.4
32 20	26.153	52.31	78.46	104.61	130.77	156.92	183.07	209.23	235.38	1569.2	3138.4	4707.6	6276.8	7846.0
21	.148	.30	.45	.59	.75	.89	.04	.19	.34	8.9	7.8	6.7	5.6	4.5
22	.144	.29	.43	.57	.72	.86	3.00	.15	.29	8.6	7.2	5.9	4.5	3.1
23	.139	.28	.42	.56	.70	.83	2.97	.11	.25	8.3	6.7	5.0	3.3	1.6
24	.134	.27	.40	.54	.67	.80	.94	.07	.21	8.0	6.1	4.1	2.2	40.2
32 25	26.129	52.26	78.39	104.52	130.65	156.78	182.90	209.03	235.16	1567.8	3135.5	4703.3	6271.0	7838.8
26	.124	.25	.37	.50	.63	.75	.87	9.00	.12	7.5	4.9	2.4	69.9	7.3
27	.120	.24	.36	.48	.60	.72	.84	8.96	.08	7.2	4.3	1.5	68.7	5.9
28	.115	.23	.34	.46	.58	.69	.81	.92	5.04	6.9	3.8	700.7	7.6	4.4
29	.110	.22	.33	.44	.55	.66	.77	.88	4.99	6.6	3.2	699.8	6.4	3.0
32 30	26.105	52.21	78.32	104.42	130.53	156.63	182.74	208.84	234.95	1566.3	3132.6	4698.9	6265.3	7831.6
31	.100	.20	.30	.40	.51	.60	.70	.80	.90	6.0	2.0	8.0	4.1	30.1
32	.096	.19	.29	.38	.48	.57	.67	.76	.86	5.7	1.5	7.2	2.9	28.7
33	.091	.18	.27	.36	.45	.54	.64	.73	.82	5.4	0.9	6.3	1.8	7.2
34	.086	.17	.26	.34	.43	.52	.60	.69	.77	5.2	30.3	5.5	60.6	5.8
32 35	26.081	52.16	78.24	104.32	130.41	156.49	182.57	208.65	234.73	1564.9	3129.7	4694.6	6259.5	7824.3
36	.076	.15	.23	.30	.39	.46	.54	.61	.69	4.6	9.1	3.7	8.3	2.9
37	.071	.14	.21	.29	.36	.43	.50	.57	.64	4.3	8.6	2.9	7.1	1.4
38	.067	.13	.20	.27	.34	.40	.47	.53	.60	4.0	8.0	2.0	6.0	20.0
39	.062	.12	.18	.25	.31	.37	.43	.49	.55	3.7	7.4	1.1	4.8	18.5
32 40	26.057	52.11	78.17	104.23	130.29	156.34	182.40	208.46	234.51	1563.4	3126.8	4690.3	6253.7	7817.1
41	.052	.10	.16	.21	.26	.31	.37	.42	.47	3.1	6.2	89.4	2.5	5.6
42	.047	.09	.14	.19	.24	.28	.33	.38	.42	2.8	5.7	8.5	1.3	4.2
43	.042	.08	.13	.17	.22	.25	.30	.34	.38	2.5	5.1	7.7	50.2	2.7
44	.038	.08	.11	.15	.19	.23	.26	.30	.34	2.3	4.5	6.8	49.0	11.3
32 45	26.033	52.07	78.10	104.13	130.17	156.20	182.23	208.26	234.29	1562.0	3123.9	4685.9	6247.9	7809.8
46	.028	.06	.08	.11	.14	.17	.20	.22	.25	1.7	3.3	5.0	6.7	8.4
47	.023	.05	.07	.09	.12	.14	.16	.18	.21	1.4	2.7	4.1	5.5	6.9
48	.018	.04	.05	.07	.09	.11	.13	.15	.17	1.1	2.2	3.3	4.4	5.4
49	.013	.03	.04	.05	.07	.08	.09	.11	.12	0.8	1.6	2.4	3.2	4.0
32 50	26.008	52.02	78.03	104.03	130.04	156.05	182.06	208.07	234.08	1560.5	3121.0	4681.5	6242.0	7802.5
51	.004	.01	.01	.01	30.02	6.02	2.03	8.03	4.03	60.2	20.4	80.6	40.9	801.1
52	5.999	2.00	8.00	3.99	29.99	5.99	1.99	7.99	3.99	59.9	19.8	79.7	39.7	799.6
53	.994	1.99	7.98	.98	.97	.96	.96	.95	.95	9.6	9.3	8.9	8.5	8.2
54	.989	.98	.97	.96	.94	.93	.92	.91	.90	9.3	8.7	8.0	7.4	6.7
32 55	25.984	51.97	77.95	103.94	129.92	155.90	181.89	207.87	233.86	1559.0	3118.1	4677.1	6236.2	7795.2
56	.979	.96	.94	.92	.90	.88	.86	.83	.81	8.8	7.5	6.2	5.0	3.8
57	.974	.95	.92	.90	.87	.85	.82	.79	.77	8.5	6.9	5.4	3.8	2.3
58	.970	.94	.91	.88	.85	.82	.79	.76	.73	8.2	6.4	4.5	2.7	90.9
59	.965	.93	.89	.86	.82	.79	.75	.72	.68	7.9	5.8	3.7	1.5	89.4
32 60	25.960	51.92	77.88	103.84	129.80	155.76	181.72	207.68	233.64	1557.6	3115.2	4672.8	6230.3	7787.9

Lat.	Latitude 32° to 33°—Meridional arcs.						Latitude 32°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 32° 30'		Value of 1'	Continuous sums of minutes from latitude 32° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
32 00	30.801			1848.05					
1	1	1	30.80	.06	1	1 848.1	0 1	1 574.9	0.1
2	1	2	61.61	.06	2	3 696.1	2	3 149.8	0.5
3	1	3	92.41	.07	3	5 544.2	3	4 724.8	1.1
4	1	4	123.21	.07	4	7 392.3	4	6 299.7	1.9
32 05	30.801	5	154.02	1848.08	5	9 240.3	0 5	7 874.6	3.0
6	1	6	184.82	.08	6	11 088.4	6	9 449.5	4.4
7	1	7	215.62	.09	7	12 936.5	7	11 024.4	6.0
8	2	8	246.43	.09	8	14 784.6	8	12 599.4	7.8
9	2	9	277.23	.10	9	16 632.7	9	14 174.3	9.8
32 10	30.802	10	308.03	1848.10	10	18 480.8	0 10	15 749.2	12.1
11	2	1	338.84	.11	1	20 328.9	15	23 623.8	27.3
12	2	2	369.64	.11	2	22 177.0	20	31 498.3	48.6
13	2	3	400.44	.12	3	24 025.1	25	39 372.9	75.9
14	2	4	431.25	.12	4	25 873.2	30	47 247.4	109.3
32 15	30.802	15	462.05	1848.13	15	27 721.4	0 35	55 121.9	148.7
16	2	6	492.85	.13	6	29 569.5	40	62 996.4	194.2
17	2	7	523.66	.14	7	31 417.6	45	70 870.8	245.8
18	2	8	554.46	.14	8	33 265.8	50	78 745.2	303.5
19	2	9	585.26	.15	9	35 113.9	55	86 619.5	367.2
32 20	30.803	20	616.07	1848.15	20	36 962.1	1 00	94 493.8	437.0
21	3	1	646.87	.16	1	38 810.2	05	102 368.0	512.8
22	3	2	677.67	.16	2	40 658.4	10	110 242.2	594.8
23	3	3	708.48	.17	3	42 506.6	15	118 116.3	682.8
24	3	4	739.28	.17	4	44 354.7	20	125 990.3	776.9
32 25	30.803	25	770.08	1848.18	25	46 202.9	1 25	133 864.3	877.0
26	3	6	800.89	.18	6	48 051.1	30	141 738.2	983.2
27	3	7	831.69	.19	7	49 899.3	35	149 612.0	1 095.5
28	3	8	862.49	.19	8	51 747.5	40	157 485.7	1 213.8
29	3	9	893.30	.20	9	53 595.6	45	165 359.3	1 338.2
32 30	30.803	30	924.10	1848.20	30	55 443.8	1 50	173 232.8	1 468.7
31	3	1	954.90	.21	1	57 292.0	55	181 106.2	1 605.3
32	4	2	985.71	.21	2	59 140.3	2 00	188 980	1 748
33	4	3	1 016.51	.22	3	60 988.5	3 00	283 449	3 933
34	4	4	1 047.31	.22	4	62 836.7	4 00	377 894	6 991
32 35	30.804	35	1 078.12	1848.23	35	64 684.9	5 00	472 307	10 922
36	4	6	1 108.92	.23	6	66 533.1	5 00	566 680	15 727
37	4	7	1 139.72	.24	7	68 381.4	7 00	661 004	21 404
38	4	8	1 170.53	.24	8	70 229.6	8 00	755 272	27 954
39	4	9	1 201.33	.25	9	72 077.8	9 00	849 475	35 375
32 40	30.804	40	1 232.13	1848.25	40	73 926.1	10 00	943 605	43 667
41	4	1	1 262.94	.26	1	75 774.4	11 00	1 037 655	52 829
42	4	2	1 293.74	.26	2	77 622.6	12 00	1 131 616	62 861
43	4	3	1 324.54	.27	3	79 470.9	13 00	1 225 480	73 761
44	5	4	1 355.35	.27	4	81 319.1	14 00	1 319 239	85 529
32 45	30.805	45	1 386.15	1848.28	45	83 167.4	15 00	1 412 885	98 164
46	5	6	1 416.95	.28	6	85 015.7	16 00	1 506 411	111 664
47	5	7	1 447.76	.29	7	86 864.0	17 00	1 599 808	126 029
48	5	8	1 478.56	.29	8	88 712.3	18 00	1 693 067	141 256
49	5	9	1 509.36	.30	9	90 560.5	19 00	1 786 182	157 346
32 50	30.805	50	1 540.17	1848.30	50	92 408.8	20 00	1 879 144	174 296
51	5	1	1 570.97	.31	1	94 257.1	21 00	1 971 946	192 105
52	5	2	1 601.77	.31	2	96 105.5	22 00	2 064 579	210 772
53	5	3	1 632.58	.32	3	97 953.8	23 00	2 157 035	230 295
54	5	4	1 663.38	.32	4	99 802.1	24 00	2 249 305	250 672
32 55	30.805	55	1 694.18	1848.33	55	101 650.4	25 00	2 341 385	271 901
56	6	6	1 724.99	.33	6	103 498.7	26 00	2 433 264	293 981
57	6	7	1 755.79	.34	7	105 347.1	27 00	2 524 935	316 910
58	6	8	1 786.59	.34	8	107 195.4	28 00	2 616 390	340 686
59	6	9	1 817.40	.35	9	109 043.8	29 00	2 707 621	365 307
32 60	30.806	60	1 848.20	1848.35	60	110 892.1	30 00	2 798 621	390 770

Latitude 33° to 34°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
33 00	25.960	51.92	77.88	103.84	129.80	155.76	181.72	207.68	233.64	1557.6	3115.2	4672.8	6230.3	7787.9
1	.955	.91	.87	.82	.78	.73	.69	.64	.60	7.3	4.6	1.9	29.2	6.5
2	.950	.90	.85	.80	.75	.70	.65	.60	.55	7.0	4.0	1.0	8.0	5.0
3	.945	.89	.84	.78	.73	.67	.62	.56	.51	6.7	3.4	70.1	6.8	3.5
4	.940	.88	.82	.76	.70	.64	.58	.52	.46	6.4	2.8	69.3	5.6	2.1
33 05	25.935	51.87	77.81	103.74	129.68	155.61	181.55	207.48	233.42	1556.1	3112.2	4668.4	6224.5	7780.6
6	.930	.86	.79	.72	.65	.58	.51	.44	.38	5.8	1.6	7.5	3.3	79.1
7	.926	.85	.78	.70	.63	.55	.48	.40	.33	5.5	1.1	6.6	2.1	7.7
8	.921	.84	.76	.68	.60	.53	.45	.37	.29	5.3	10.5	5.7	21.0	6.2
9	.916	.83	.75	.66	.58	.50	.41	.33	.24	5.0	09.9	4.8	19.8	4.7
33 10	25.911	51.82	77.73	103.64	129.55	155.47	181.38	207.29	233.20	1554.7	3109.3	4664.0	6218.6	7773.3
11	.906	.81	.72	.62	.53	.44	.35	.25	.16	4.4	8.7	3.1	7.4	1.8
12	.901	.80	.70	.60	.50	.41	.31	.21	.11	4.1	8.1	2.2	6.2	70.3
13	.896	.79	.69	.58	.48	.38	.28	.17	.07	3.8	7.5	1.3	5.1	68.8
14	.891	.78	.67	.57	.46	.35	.24	.13	.02	3.5	7.0	60.4	3.9	7.4
33 15	25.886	51.77	77.66	103.55	129.43	155.32	181.21	207.09	232.98	1553.2	3106.4	4659.5	6212.7	7765.9
16	.881	.76	.64	.53	.41	.29	.17	.05	.93	2.9	5.8	8.6	1.5	4.4
17	.876	.75	.63	.51	.38	.26	.14	7.01	.89	2.6	5.2	7.7	10.4	2.9
18	.872	.74	.62	.49	.36	.23	.10	6.97	.85	2.3	4.6	6.9	09.2	1.5
19	.867	.73	.60	.47	.33	.20	.07	.93	.80	2.0	4.0	6.0	8.0	60.0
33 20	25.862	51.72	77.59	103.45	129.31	155.17	181.03	206.89	232.76	1551.7	3103.4	4655.1	6206.8	7758.5
21	.857	.71	.57	.43	.29	.14	1.00	.85	.71	1.4	2.8	4.2	5.6	7.0
22	.852	.70	.56	.41	.26	.11	0.96	.81	.67	1.1	2.2	3.3	4.4	5.6
23	.847	.69	.54	.39	.24	.08	.93	.78	.63	0.8	1.6	2.5	3.3	4.1
24	.842	.68	.53	.37	.21	.05	.89	.74	.58	0.5	1.0	1.6	2.1	2.6
33 25	25.837	51.67	77.51	103.35	129.19	155.02	180.86	206.70	232.54	1550.2	3100.4	4650.7	6200.9	7751.1
26	.832	.66	.50	.33	.16	4.99	.82	.66	.49	49.9	099.8	49.8	199.7	49.6
27	.827	.65	.48	.31	.14	.96	.79	.62	.45	9.6	9.3	8.9	8.5	8.2
28	.822	.64	.47	.29	.11	.93	.76	.58	.40	9.3	8.7	8.0	7.3	6.7
29	.817	.63	.45	.27	.09	.90	.72	.54	.36	9.0	8.1	7.1	6.2	5.2
33 30	25.812	51.62	77.44	103.25	129.06	154.87	180.69	206.50	232.31	1548.7	3097.5	4646.2	6195.0	7743.7
31	.807	.61	.42	.23	.04	.84	.65	.46	.27	8.4	6.9	5.3	3.8	2.2
32	.802	.60	.41	.21	9.01	.81	.62	.42	.22	8.1	6.3	4.4	2.6	40.7
33	.797	.59	.39	.19	8.99	.78	.58	.38	.18	7.8	5.7	3.5	1.4	39.2
34	.793	.58	.38	.17	.96	.76	.55	.34	.13	7.6	5.1	2.7	90.2	7.8
33 35	25.788	51.58	77.36	103.15	128.94	154.73	180.52	206.30	232.09	1547.3	3094.5	4641.8	6189.0	7736.3
36	.783	.57	.35	.13	.91	.70	.48	.26	.05	7.0	3.9	0.9	7.8	4.8
37	.778	.56	.33	.11	.89	.67	.45	.22	2.00	6.7	3.3	40.0	6.6	3.3
38	.773	.55	.32	.09	.86	.64	.41	.18	1.96	6.4	2.7	39.1	5.5	1.8
39	.768	.54	.30	.07	.84	.61	.38	.14	.91	6.1	2.1	8.2	4.3	30.3
33 40	25.763	51.53	77.29	103.05	128.81	154.58	180.34	206.10	231.87	1545.8	3091.5	4637.3	6183.1	7728.8
41	.758	.52	.27	.03	.79	.55	.31	.06	.82	5.5	0.9	6.4	1.9	7.3
42	.753	.51	.26	3.01	.76	.52	.27	6.02	.78	5.2	90.3	5.5	80.7	5.9
43	.748	.50	.24	2.99	.74	.49	.24	5.98	.73	4.9	89.8	4.6	79.5	4.4
44	.743	.49	.23	.97	.71	.46	.20	.94	.69	4.6	9.2	3.7	8.3	2.9
33 45	25.738	51.48	77.21	102.95	128.69	154.43	180.17	205.90	231.64	1544.3	3088.6	4632.8	6177.1	7721.4
46	.733	.47	.20	.93	.67	.40	.13	.86	.60	4.0	8.0	1.9	5.9	19.9
47	.728	.46	.18	.91	.64	.37	.10	.82	.55	3.7	7.4	1.0	4.7	8.4
48	.723	.45	.17	.89	.62	.34	.06	.78	.51	3.4	6.8	30.1	3.5	6.9
49	.718	.44	.15	.87	.59	.31	80.03	.74	.46	3.1	6.2	29.2	2.3	5.4
33 50	25.713	51.43	77.14	102.85	128.57	154.28	179.99	205.70	231.42	1542.8	3085.6	4628.3	6171.1	7713.9
51	.708	.42	.12	.83	.55	.25	.96	.66	.37	2.5	5.0	7.4	69.9	2.4
52	.703	.41	.11	.81	.52	.22	.92	.62	.33	2.2	4.4	6.5	8.7	10.9
53	.698	.40	.09	.79	.49	.19	.89	.58	.28	1.9	3.8	5.6	7.5	09.4
54	.693	.39	.08	.77	.47	.16	.85	.54	.24	1.6	3.2	4.7	6.3	7.9
33 55	25.688	51.38	77.06	102.75	128.44	154.13	179.82	205.50	231.19	1541.3	3082.6	4623.8	6165.1	7706.4
56	.683	.37	.05	.73	.42	.10	.78	.46	.15	1.0	2.0	2.9	3.9	4.9
57	.678	.36	.03	.71	.39	.07	.75	.42	.10	0.7	1.4	2.0	2.7	3.4
58	.673	.35	.02	.69	.37	.04	.71	.38	.06	0.4	0.8	1.1	1.5	1.9
59	.668	.34	7.00	.67	.34	4.01	.68	.34	1.01	40.1	80.2	20.2	60.3	700.4
33 60	25.663	51.33	76.99	102.65	128.32	153.98	179.64	205.30	230.97	1539.8	3079.6	4619.3	6159.1	7698.9

Lat.	Latitude 33° to 34°—Meridional arcs.						Latitude 33°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 33° 30'		Value of 1'	Continuous sums of minutes from latitude 33° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
33 00	30.806			1848.35					
1	6	1	30.81	.36	1	1848.4	0 1	1557.6	0.1
2	6	2	61.62	.36	2	3696.7	2	3115.2	0.5
3	6	3	92.43	.37	3	5545.1	3	4672.8	1.1
4	6	4	123.23	.37	4	7393.4	4	6230.3	2.0
33 05	30.806	5	154.04	1848.38	5	9241.8	0 5	7787.9	3.1
6	6	6	184.85	.38	6	11090.2	6	9345.5	4.4
7	6	7	215.66	.39	7	12938.6	7	10903.1	6.0
8	7	8	246.47	.39	8	14787.0	8	12460.7	7.9
9	7	9	277.28	.40	9	16635.4	9	14018.3	10.0
33 10	30.807	10	308.08	1848.40	10	18483.8	0 10	15575.9	12.3
11	7	1	338.89	.41	1	20332.2	15	23363.8	27.8
12	7	2	369.70	.41	2	22180.6	20	31151.7	49.4
13	7	3	400.51	.42	3	24029.0	25	38939.6	77.1
14	7	4	431.32	.42	4	25877.4	30	46727.4	111.0
33 15	30.807	15	462.13	1848.43	15	27725.8	0 35	54515.3	151.1
16	7	6	492.93	.43	6	29574.2	40	62303.1	197.4
17	7	7	523.74	.44	7	31422.7	45	70090.8	249.8
18	7	8	554.55	.44	8	33271.1	50	77878.6	308.4
19	7	9	585.36	.45	9	35119.6	55	85666.2	373.2
33 20	30.808	20	616.17	1848.45	20	36968.0	1 00	93453.8	444.2
21	8	1	646.98	.46	1	38816.5	05	101241.4	521.3
22	8	2	677.78	.46	2	40664.9	10	109028.9	604.6
23	8	3	708.59	.47	3	42513.4	15	116816.3	694.0
24	8	4	739.40	.47	4	44361.9	20	124603.7	789.6
33 25	30.808	25	770.21	1848.48	25	46210.3	1 25	132390.9	891.4
26	8	6	801.02	.48	6	48058.8	30	140178.1	999.4
27	8	7	831.83	.49	7	49907.3	35	147965.2	1113.5
28	8	8	862.63	.49	8	51755.8	40	155752.2	1233.8
29	8	9	893.44	.50	9	53604.3	45	163539.1	1360.3
33 30	30.808	30	924.25	1848.50	30	55452.8	1 50	171326.0	1492.9
31	8	1	955.06	.51	1	57301.3	55	179112.7	1631.7
32	9	2	985.87	.51	2	59149.8	2 00	186899	1777
33	9	3	1016.68	.52	3	60998.3	3 00	280328	3997
34	9	4	1047.48	.52	4	62846.8	4 00	373731	7106
33 35	30.809	35	1078.29	1848.53	35	64695.3	5 00	467100	11102
36	9	6	1109.10	.53	6	66543.9	6 00	560428	15986
37	9	7	1139.91	.54	7	68392.4	7 00	653704	21757
38	9	8	1170.72	.54	8	70241.0	8 00	746922	28414
39	9	9	1201.53	.55	9	72089.5	9 00	840072	35957
33 40	30.809	40	1232.33	1848.55	40	73938.0	10 00	933146	44385
41	9	1	1263.14	.56	1	75786.6	11 00	1026136	53697
42	9	2	1293.95	.56	2	77635.2	12 00	1119033	63893
43	09	3	1324.76	.57	3	79483.7	13 00	1211829	74971
44	10	4	1355.57	.57	4	81332.3	14 00	1304515	86931
33 45	30.810	45	1386.38	1848.58	45	83180.9	15 00	1397083	99771
46	0	6	1417.18	.58	6	85029.4	16 00	1489526	113491
47	0	7	1447.99	.59	7	86878.0	17 00	1581834	128089
48	0	8	1478.80	.59	8	88726.6	18 00	1673998	143564
49	0	9	1509.61	.60	9	90575.2	19 00	1766011	159914
33 50	30.810	50	1540.42	1848.60	50	92423.8	20 00	1857866	177138
51	0	1	1571.23	.61	1	94272.4	21 00	1949553	195234
52	0	2	1602.03	.61	2	96121.0	22 00	2041062	214201
53	0	3	1632.84	.62	3	97969.6	23 00	2132387	234037
54	0	4	1663.65	.62	4	99818.2	24 00	2223521	254740
33 55	30.810	55	1694.46	1848.63	55	101666.9	25 00	2314453	276309
56	1	6	1725.27	.63	6	103515.5	26 00	2405175	298741
57	1	7	1756.08	.64	7	105364.1	27 00	2495680	322034
58	1	8	1786.88	.64	8	107212.8	28 00	2585961	346187
59	1	9	1817.69	.65	9	109061.4	29 00	2676007	371197
33 60	30.811	60	1848.50	1848.65	60	110910.1	30 00	2765812	397061

Latitude 34° to 35°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
34 00	25.663	51.33	76.99	102.65	128.32	153.98	179.64	205.30	230.97	1539.8	3079.6	4619.3	6159.1	7698.9
1	.658	.32	.97	.63	.29	.95	.61	.26	.92	9.5	9.0	8.4	7.9	7.4
2	.653	.31	.96	.61	.27	.92	.57	.22	.88	9.2	8.4	7.5	6.7	5.9
3	.648	.30	.94	.59	.24	.89	.54	.18	.83	8.9	7.7	6.6	5.5	4.4
4	.643	.29	.93	.57	.22	.86	.50	.14	.79	8.6	7.1	5.7	4.3	2.9
34 05	25.638	51.28	76.91	102.55	128.19	153.83	179.47	205.10	230.74	1538.3	3076.5	4614.8	6153.1	7691.4
6	.633	.27	.90	.53	.16	.80	.43	.06	.70	8.0	5.9	3.9	1.9	89.9
7	.628	.26	.88	.51	.14	.77	.40	5.02	.65	7.7	5.3	3.0	50.7	8.4
8	.623	.25	.87	.49	.11	.74	.36	4.98	.60	7.4	4.7	2.1	49.5	6.8
9	.618	.24	.85	.47	.09	.71	.33	.94	.56	7.1	4.1	1.2	8.3	5.3
34 10	25.613	51.23	76.84	102.45	128.06	153.68	179.29	204.90	230.51	1536.8	3073.5	4610.3	6147.1	7683.8
11	.608	.22	.82	.43	.04	.65	.26	.86	.47	6.5	2.9	09.4	5.9	2.3
12	.603	.21	.81	.41	8.01	.62	.22	.82	.42	6.2	2.3	8.5	4.6	80.8
13	.598	.20	.79	.39	7.99	.59	.19	.78	.38	5.9	1.7	7.6	3.4	79.3
14	.593	.19	.78	.37	.96	.56	.15	.74	.33	5.6	1.1	6.7	2.2	7.8
34 15	25.588	51.18	76.76	102.35	127.94	153.53	179.12	204.70	230.29	1535.3	3070.5	4605.8	6141.0	7676.3
16	.583	.16	.75	.33	.91	.50	.08	.66	.24	5.0	69.9	4.9	39.8	4.8
17	.577	.15	.73	.31	.89	.46	.04	.62	.20	4.6	9.3	3.9	8.6	3.2
18	.572	.14	.72	.29	.86	.43	9.01	.58	.15	4.3	8.7	3.0	7.4	1.7
19	.567	.13	.70	.27	.84	.40	8.97	.54	.11	4.0	8.1	2.1	6.2	70.2
34 20	25.562	51.12	76.69	102.25	127.81	153.37	178.94	204.50	230.06	1533.7	3067.5	4601.2	6135.0	7668.7
21	.557	.11	.67	.23	.79	.34	.90	.46	30.02	3.4	6.9	600.3	3.7	7.2
22	.552	.10	.66	.21	.76	.31	.87	.42	29.97	3.1	6.3	599.4	2.5	5.7
23	.547	.09	.64	.19	.74	.28	.83	.38	.92	2.8	5.6	8.5	1.3	4.1
24	.542	.08	.63	.17	.71	.25	.80	.34	.88	2.5	5.0	7.6	30.1	2.6
34 25	25.537	51.07	76.61	102.15	127.69	153.22	178.76	204.30	229.83	1532.2	3064.4	4596.7	6128.9	7661.1
26	.532	.06	.60	.13	.66	.19	.72	.26	.79	1.9	3.8	5.8	7.7	59.6
27	.527	.05	.58	.11	.64	.16	.69	.21	.74	1.6	3.2	4.9	6.4	8.1
28	.522	.04	.57	.09	.61	.13	.65	.17	.70	1.3	2.6	3.9	5.2	6.5
29	.517	.03	.55	.07	.59	.10	.62	.13	.65	1.0	2.0	3.0	4.0	5.0
34 30	25.512	51.02	76.54	102.05	127.56	153.07	178.58	204.09	229.61	1530.7	3061.4	4592.1	6122.8	7653.5
31	.507	.01	.52	.03	.53	.04	.55	.05	.56	0.4	0.8	1.2	1.6	2.0
32	.501	1.00	.50	2.01	.51	3.01	.51	4.01	.51	30.1	60.2	90.3	20.4	50.4
33	.496	0.99	.49	1.99	.48	2.98	.48	3.97	.47	29.8	59.6	89.3	19.1	48.9
34	.491	.98	.47	.97	.46	.95	.44	.93	.42	9.5	9.0	8.4	7.9	7.4
34 35	25.486	50.97	76.46	101.94	127.43	152.92	178.41	203.89	229.38	1529.2	3058.3	4587.5	6116.7	7645.9
36	.481	.96	.44	.92	.40	.89	.37	.85	.33	8.9	7.7	6.6	5.5	4.3
37	.476	.95	.43	.90	.38	.86	.34	.81	.28	8.6	7.1	5.7	4.2	2.8
38	.471	.94	.41	.88	.35	.83	.30	.77	.24	8.3	6.5	4.8	3.0	41.3
39	.466	.93	.40	.86	.33	.80	.27	.73	.19	8.0	5.9	3.9	1.8	39.8
34 40	25.461	50.92	76.38	101.84	127.30	152.76	178.23	203.69	229.15	1527.6	3055.3	4582.9	6110.6	7638.2
41	.456	.91	.37	.82	.28	.73	.19	.65	.10	7.3	4.7	2.0	09.4	6.7
42	.451	.90	.35	.80	.25	.70	.16	.61	.06	7.0	4.1	1.1	8.2	5.2
43	.445	.89	.34	.78	.23	.67	.12	.56	9.01	6.7	3.4	80.1	6.9	3.6
44	.440	.88	.32	.76	.20	.64	.08	.52	8.96	6.4	2.8	79.2	5.7	2.1
34 45	25.435	50.87	76.31	101.74	127.17	152.61	178.05	203.48	228.92	1526.1	3052.2	4578.3	6104.5	7630.6
46	.430	.86	.29	.72	.15	.58	8.01	.44	.87	5.8	1.6	7.4	3.2	29.0
47	.425	.85	.28	.70	.12	.55	7.98	.40	.83	5.5	1.0	6.5	2.0	7.5
48	.420	.84	.26	.68	.10	.52	.94	.36	.78	5.2	50.4	5.5	100.8	6.0
49	.415	.83	.24	.66	.07	.49	.91	.32	.73	4.9	49.8	4.6	099.6	4.4
34 50	25.410	50.82	76.23	101.64	127.05	152.46	177.87	203.28	228.69	1524.6	3049.2	4573.7	6098.3	7622.9
51	.405	.81	.21	.62	.02	.43	.83	.24	.64	4.3	8.6	2.8	7.1	21.4
52	.399	.80	.20	.60	7.00	.40	.80	.20	.59	4.0	8.0	1.9	5.9	19.8
53	.394	.79	.18	.58	6.97	.37	.76	.15	.55	3.7	7.3	1.0	4.6	8.3
54	.389	.78	.17	.56	.95	.34	.73	.11	.50	3.4	6.7	70.1	3.4	6.8
34 55	25.384	50.77	76.15	101.54	126.92	152.30	177.69	203.07	228.46	1523.0	3046.1	4569.1	6092.2	7615.2
56	.379	.76	.14	.52	.89	.27	.65	3.03	.41	2.7	5.5	8.2	90.9	3.7
57	.374	.75	.12	.49	.87	.24	.62	2.99	.36	2.4	4.8	7.3	89.7	2.1
58	.369	.74	.11	.47	.84	.21	.58	.95	.32	2.1	4.2	6.3	8.5	10.6
59	.364	.73	.09	.45	.82	.18	.55	.91	.27	1.8	3.6	5.4	7.2	09.1
34 60	25.358	50.72	76.08	101.43	126.79	152.15	177.51	202.87	228.23	1521.5	3043.0	4564.5	6086.0	7607.5

Lat.	Latitude 34° to 35°—Meridional arcs.						Latitude 34°—Co-ordinates of curvature.		
	Value of r''	Sums of seconds for middle latitude 34° 30'		Value of r'	Continuous sums of minutes from latitude 34° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
34 00	30.811			1848.65					
1	1	1	30.81	.66	1	1 848.7	0 1	1 539.8	0.1
2	1	2	61.63	.66	2	3 697.3	2	3 079.6	0.5
3	1	3	92.44	.67	3	5 546.0	3	4 619.3	1.1
4	1	4	123.25	.67	4	7 394.6	4	6 159.1	2.0
34 05	30.811	5	154.07	1848.68	5	9 243.3	0 5	7 698.9	3.1
6	1	6	184.88	.68	6	11 092.0	6	9 238.7	4.5
7	1	7	215.69	.69	7	12 940.7	7	10 778.5	6.1
8	2	8	246.51	.69	8	14 789.4	8	12 318.3	8.0
9	2	9	277.32	.70	9	16 638.1	9	13 858.0	10.1
34 10	30.812	10	308.13	1848.70	10	18 486.8	0 10	15 397.9	12.5
11	2	1	338.95	.71	1	20 335.5	15	23 096.7	28.2
12	2	2	369.76	.71	2	22 184.2	20	30 795.6	50.1
13	3	3	400.57	.72	3	24 032.9	25	38 494.4	78.3
14	3	4	431.39	.72	4	25 881.6	30	46 193.2	112.7
34 15	30.812	15	462.20	1848.73	15	27 730.4	0 35	53 892.0	153.4
16	2	6	493.01	.73	6	29 579.1	40	61 590.8	200.4
17	2	7	523.83	.74	7	31 427.8	45	69 289.5	253.6
18	2	8	554.64	.74	8	33 276.6	50	76 988.2	313.1
19	2	9	585.46	.75	9	35 125.3	55	84 686.8	378.8
34 20	30.813	20	616.27	1848.75	20	36 974.1	1 00	92 385.4	450.8
21	3	1	647.08	.76	1	38 822.8	05	100 083.9	529.1
22	3	2	677.90	.76	2	40 671.6	10	107 782.3	613.6
23	3	3	708.71	.77	3	42 520.3	15	115 480.7	704.4
24	3	4	739.52	.78	4	44 369.1	20	123 179.0	801.5
34 25	30.813	25	770.34	1848.78	25	46 217.9	1 25	130 877.2	904.8
26	3	6	801.15	.79	6	48 066.7	30	138 575.3	1 014.4
27	3	7	831.96	.79	7	49 915.5	35	146 273.4	1 130.2
28	3	8	862.78	.80	8	51 764.3	40	153 971.3	1 252.3
29	3	9	893.59	.80	9	53 613.1	45	161 669.2	1 380.7
34 30	30.813	30	924.40	1848.81	30	55 461.9	1 50	169 366.9	1 515.3
31	4	1	955.22	.81	1	57 310.7	55	177 064.5	1 656.1
32	4	2	986.03	.82	2	59 159.5	2 00	184 762	1 803
33	4	3	1 016.84	.82	3	61 008.3	3 00	277 121	4 057
34	4	4	1 047.66	.83	4	62 857.1	4 00	369 454	7 212
34 35	30.814	35	1 078.47	1848.83	35	64 705.9	5 00	461 751	11 268
36	4	6	1 109.28	.84	6	66 554.8	6 00	554 004	16 225
37	4	7	1 140.10	.84	7	68 403.6	7 00	646 205	22 082
38	4	8	1 170.91	.85	8	70 252.5	8 00	738 344	28 839
39	4	9	1 201.72	.85	9	72 101.3	9 00	830 413	36 494
34 40	30.814	40	1 232.54	1848.86	40	73 950.2	10 00	922 403	45 048
41	4	1	1 263.35	.86	1	75 799.0	11 00	1 014 305	54 499
42	4	2	1 294.16	.87	2	77 647.9	12 00	1 106 110	64 846
43	5	3	1 324.98	.87	3	79 496.8	13 00	1 197 809	76 089
44	5	4	1 355.79	.88	4	81 345.6	14 00	1 289 395	88 227
34 45	30.815	45	1 386.60	1848.88	45	83 194.5	15 00	1 380 858	101 258
46	5	6	1 417.42	.89	6	85 043.4	16 00	1 472 190	115 180
47	5	7	1 448.23	.89	7	86 892.3	17 00	1 563 381	129 993
48	5	8	1 479.04	.90	8	88 741.2	18 00	1 654 423	145 696
49	5	9	1 509.86	.90	9	90 590.1	19 00	1 745 308	162 287
34 50	30.815	50	1 540.67	1848.91	50	92 439.0	20 00	1 836 026	179 763
51	5	1	1 571.48	.91	1	94 287.9	21 00	1 926 569	198 124
52	5	2	1 602.30	.92	2	96 136.8	22 00	2 016 929	217 368
53	5	3	1 633.11	.92	3	97 985.7	23 00	2 107 097	237 493
54	5	4	1 663.93	.93	4	99 834.7	24 00	2 197 065	258 497
34 55	30.816	55	1 694.74	1848.93	55	101 683.6	25 00	2 286 823	280 378
56	6	6	1 725.55	.94	6	103 532.5	26 00	2 376 363	303 134
57	6	7	1 756.37	.94	7	105 381.5	27 00	2 465 677	326 763
58	6	8	1 787.18	.95	8	107 230.4	28 00	2 554 756	351 262
59	6	9	1 817.99	.95	9	109 079.4	29 00	2 643 591	376 629
34 60	30.816	60	1 848.81	1848.96	60	110 928.3	30 00	2 732 175	402 863

Latitude 35° to 36°—Arca of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
35 00	25.358	50.72	76.08	101.43	126.79	152.15	177.51	202.87	228.23	1521.5	3043.0	4564.5	6086.0	7607.5
1	.353	.71	.06	.41	.76	.12	.47	.83	.18	1.2	2.4	3.6	4.8	6.0
2	.348	.70	.04	.39	.74	.09	.44	.78	.14	0.9	1.8	2.7	3.5	4.4
3	.343	.69	.03	.37	.71	.06	.40	.74	.09	0.6	1.2	1.7	2.3	2.9
4	.338	.68	.01	.35	.69	.03	.37	.70	.04	0.3	40.5	60.8	81.1	601.3
35 05	25.333	50.67	76.00	101.33	126.66	152.00	177.33	202.66	228.00	1520.0	3039.9	4559.8	6079.8	7599.8
6	.327	.65	5.98	.31	.63	1.96	.29	.62	7.95	19.6	9.3	9.0	8.6	8.2
7	.322	.64	.97	.29	.61	.93	.26	.58	.91	9.3	8.7	8.0	7.4	6.7
8	.317	.63	.95	.27	.58	.90	.22	.54	.86	9.0	8.0	7.1	6.1	5.1
9	.312	.62	.94	.25	.56	.87	.19	.50	.81	8.7	7.4	6.1	4.9	3.6
35 10	25.307	50.61	75.92	101.23	126.53	151.84	177.15	202.46	227.76	1518.4	3036.8	4555.2	6073.7	7592.1
11	.302	.60	.91	.21	.51	.81	.11	.41	.72	8.1	6.2	4.3	2.4	90.5
12	.296	.59	.89	.19	.48	.78	.08	.37	.67	7.8	5.6	3.4	71.1	88.9
13	.291	.58	.87	.17	.46	.75	.04	.33	.62	7.5	5.0	2.4	69.9	7.4
14	.286	.57	.86	.14	.43	.72	7.01	.29	.58	7.2	4.3	1.5	8.6	5.8
35 15	25.281	50.56	75.84	101.12	126.41	151.69	176.97	202.25	227.53	1516.9	3033.7	4550.6	6067.4	7584.3
16	.276	.55	.83	.10	.38	.65	.93	.21	.49	6.5	3.1	49.7	6.2	2.7
17	.271	.54	.81	.08	.35	.62	.90	.17	.44	6.2	2.5	8.7	5.0	81.2
18	.265	.53	.80	.06	.33	.59	.86	.12	.39	5.9	1.8	7.8	3.7	79.6
19	.260	.52	.78	.04	.30	.56	.82	.08	.34	5.6	1.2	6.8	2.5	8.1
35 20	25.255	50.51	75.77	101.02	126.28	151.53	176.79	202.04	227.30	1515.3	3030.6	4545.9	6061.2	7576.5
21	.250	.50	.75	1.00	.25	.50	.75	2.00	.25	5.0	30.0	5.0	60.0	5.0
22	.245	.49	.73	0.98	.23	.47	.72	1.96	.20	4.7	29.4	4.0	58.7	3.4
23	.240	.48	.72	.96	.20	.44	.68	.92	.16	4.4	8.8	3.1	7.5	1.9
24	.234	.47	.70	.94	.18	.41	.64	.87	.11	4.1	8.1	2.1	6.2	70.3
35 25	25.229	50.46	75.69	100.92	126.15	151.37	176.60	201.83	227.06	1513.7	3027.5	4541.2	6055.0	7568.7
26	.224	.45	.67	.90	.12	.34	.57	.79	7.02	3.4	6.9	40.3	3.8	7.2
27	.219	.44	.66	.87	.09	.31	.53	.75	6.97	3.1	6.2	39.4	2.5	5.6
28	.214	.43	.64	.85	.07	.28	.49	.71	.92	2.8	5.6	8.4	1.3	4.1
29	.208	.42	.63	.83	.04	.25	.46	.67	.88	2.5	5.0	7.5	50.0	2.5
35 30	25.203	50.41	75.61	100.81	126.02	151.22	176.42	201.63	226.83	1512.2	3024.4	4536.6	6048.8	7561.0
31	.198	.40	.59	.79	5.99	.19	.38	.58	.78	1.9	3.8	5.7	7.5	59.4
32	.193	.39	.58	.77	.97	.16	.35	.54	.74	1.6	3.1	4.7	6.2	7.8
33	.188	.38	.56	.75	.94	.13	.31	.50	.69	1.3	2.5	3.8	5.0	6.3
34	.182	.36	.55	.73	.91	.09	.28	.46	.64	0.9	1.9	2.8	3.8	4.7
35 35	25.177	50.35	75.53	100.71	125.88	151.06	176.24	201.42	226.60	1510.6	3021.2	4531.9	6042.5	7553.1
36	.172	.34	.52	.69	.86	.03	.20	.38	.55	0.3	0.6	1.0	1.3	1.6
37	.167	.33	.50	.67	.84	1.00	.17	.33	.50	10.0	20.0	30.0	40.0	50.0
38	.161	.32	.48	.65	.81	0.97	.13	.29	.45	09.7	19.4	29.1	38.7	48.4
39	.156	.31	.47	.63	.79	.94	.10	.25	.41	9.4	8.8	8.1	7.5	6.9
35 40	25.151	50.30	75.45	100.60	125.76	150.91	176.06	201.21	226.36	1509.1	3018.1	4527.2	6036.2	7545.3
41	.146	.29	.44	.58	.73	.87	6.02	.17	.31	8.7	7.5	6.3	5.0	3.7
42	.141	.28	.42	.56	.70	.84	5.99	.13	.27	8.4	6.9	5.3	3.8	2.2
43	.135	.27	.41	.54	.68	.81	.95	.08	.22	8.1	6.2	4.4	2.5	40.6
44	.130	.26	.39	.52	.65	.78	.91	.04	.17	7.8	5.6	3.4	31.2	39.0
35 45	25.125	50.25	75.37	100.50	125.62	150.75	175.87	201.00	226.12	1507.5	3015.0	4522.5	6029.9	7537.4
46	.120	.24	.36	.48	.60	.72	.84	0.96	.08	7.2	4.4	1.6	8.7	5.9
47	.114	.23	.34	.46	.57	.69	.80	.91	6.03	6.9	3.7	20.6	7.4	4.3
48	.109	.22	.33	.44	.54	.65	.76	.87	5.98	6.5	3.1	19.7	6.2	2.7
49	.104	.21	.31	.42	.52	.62	.72	.83	.94	6.2	2.5	8.7	5.0	31.2
35 50	25.099	50.20	75.30	100.39	125.49	150.59	175.69	200.79	225.89	1505.9	3011.8	4517.8	6023.7	7529.6
51	.093	.19	.28	.37	.46	.56	.65	.75	.84	5.6	1.2	6.8	2.4	8.0
52	.088	.18	.26	.35	.44	.53	.62	.70	.79	5.3	0.6	5.9	21.1	6.4
53	.083	.17	.25	.33	.41	.50	.58	.66	.75	5.0	10.0	4.9	19.9	4.9
54	.078	.16	.23	.31	.39	.47	.54	.62	.70	4.7	09.3	4.0	8.6	3.3
35 55	25.072	50.14	75.22	100.29	125.36	150.43	175.50	200.58	225.65	1504.3	3008.7	4513.0	6017.4	7521.7
56	.067	.13	.20	.27	.33	.40	.47	.54	.60	4.0	8.0	2.1	6.1	20.1
57	.062	.12	.19	.25	.31	.37	.43	.49	.55	3.7	7.4	1.1	4.8	18.5
58	.057	.11	.17	.23	.28	.34	.39	.45	.51	3.4	6.8	10.2	3.6	7.0
59	.051	.10	.15	.21	.26	.31	.36	.41	.46	3.1	6.2	09.2	2.3	5.4
35 60	25.046	50.09	75.14	100.18	125.23	150.28	175.32	200.37	225.41	1502.8	3005.5	4508.3	6011.0	7513.8

Lat.	Latitude 35° to 36°—Meridional arcs.						Latitude 35°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 35° 30'		Value of 1'	Continuous sums of minutes from latitude 35° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
35 00	30.816			1848.96			0 1	1 521.5	0.1
1	6	1	30.82	.96	1	1 849.0	0 2	3 043.0	0.5
2	6	2	61.64	.97	2	3 697.9	0 3	4 564.5	1.1
3	6	3	92.46	.97	3	5 546.9	0 4	6 086.0	2.0
4	6	4	123.27	.98	4	7 395.9	0 5	7 607.5	3.2
35 05	30.816	5	154.09	1848.99	5	9 244.9	0 6	9 129.0	4.6
6	7	6	184.91	8.99	6	11 093.9	0 7	10 650.5	6.2
7	7	7	215.73	9.00	7	12 942.8	0 8	12 172.0	8.1
8	7	8	246.55	.00	8	14 791.8	0 9	13 693.5	10.3
9	7	9	277.37	.01	9	16 640.8			
35 10	30.817	10	308.19	1849.01	10	18 489.9	0 10	15 215.0	12.7
11	7	11	339.00	.02	11	20 338.9	0 15	22 822.5	28.6
12	7	12	369.82	.02	12	22 187.9	0 20	30 430.0	50.8
13	7	13	400.64	.03	13	24 036.9	0 25	38 037.5	79.3
14	7	14	431.46	.03	14	25 885.9	0 30	45 645.0	114.2
35 15	30.817	15	462.28	1849.04	15	27 735.0	0 35	53 252.4	155.5
16	7	16	493.10	.04	16	29 584.0	0 40	60 859.7	203.1
17	7	17	523.92	.05	17	31 433.1	0 45	68 467.1	257.0
18	8	18	554.73	.05	18	33 282.1	0 50	76 074.3	317.3
19	8	19	585.55	.06	19	35 131.2	0 55	83 681.6	384.0
35 20	30.818	20	616.37	1849.06	20	36 980.2	1 00	91 288.8	456.9
21	8	1	647.19	.07	21	38 829.3	1 05	98 895.9	536.3
22	8	2	678.01	.07	22	40 678.4	1 10	106 502.9	622.0
23	8	3	708.83	.08	23	42 527.4	1 15	114 109.9	714.0
24	8	4	739.65	.08	24	44 376.5	1 20	121 716.8	812.4
35 25	30.818	25	770.46	1849.09	25	46 225.6	1 25	129 323.6	917.1
26	8	5	801.28	.09	26	48 074.7	1 30	136 930.3	1 028.1
27	8	6	832.10	.10	27	49 923.8	1 35	144 536.9	1 145.5
28	8	7	862.92	.10	28	51 772.9	1 40	152 143.4	1 269.3
29	8	8	893.74	.11	29	53 622.0	1 45	159 749.8	1 399.4
35 30	30.819	30	924.56	1849.11	30	55 471.1	1 50	167 356.1	1 535.8
31	9	1	955.38	.12	31	57 320.2	1 55	174 962.3	1 678.6
32	9	2	986.19	.12	32	59 169.4	2 00	182 568	1 828
33	9	3	1 017.01	.13	33	61 018.5	2 05	190 174.5	1 981.1
34	9	4	1 047.83	.13	34	62 867.6	2 10	197 781.0	2 134.2
35 35	30.819	35	1 078.65	1849.14	35	64 716.7	2 15	205 387.5	2 287.3
36	9	5	1 109.47	.15	36	66 565.9	2 20	213 000.0	2 440.4
37	9	6	1 140.29	.15	37	68 415.0	2 25	220 612.5	2 593.5
38	9	7	1 171.11	.16	38	70 264.2	2 30	228 225.0	2 746.6
39	9	8	1 201.92	.16	39	72 113.3	2 35	235 837.5	2 899.7
35 40	30.819	40	1 232.74	1849.17	40	73 962.5	2 40	243 450.0	3 052.8
41	10	1	1 263.56	.17	41	75 811.7	2 45	251 062.5	3 205.9
42	10	2	1 294.38	.18	42	77 660.8	2 50	258 675.0	3 359.0
43	10	3	1 325.20	.18	43	79 509.9	2 55	266 287.5	3 512.1
44	10	4	1 356.02	.19	44	81 359.2	2 60	273 900.0	3 665.2
35 45	30.820	45	1 386.84	1849.19	45	83 208.4	2 65	281 512.5	3 818.3
46	10	5	1 417.65	.20	46	85 057.6	2 70	289 125.0	3 971.4
47	10	6	1 448.47	.20	47	86 906.8	2 75	296 737.5	4 124.5
48	10	7	1 479.29	.21	48	88 756.0	2 80	304 350.0	4 277.6
49	10	8	1 510.11	.21	49	90 605.2	2 85	311 962.5	4 430.7
35 50	30.820	50	1 540.93	1849.22	50	92 454.4	2 90	319 575.0	4 583.8
51	10	1	1 571.75	.22	51	94 303.6	2 95	327 187.5	4 736.9
52	10	2	1 602.57	.23	52	96 152.9	3 00	334 800.0	4 890.0
53	11	3	1 633.38	.23	53	98 002.1	3 05	342 412.5	5 043.1
54	11	4	1 664.20	1849.24	54	99 851.3	3 10	350 025.0	5 196.2
35 55	30.821	55	1 695.02	.24	55	101 700.6	3 15	357 637.5	5 349.3
56	11	5	1 725.84	.25	56	103 549.8	3 20	365 250.0	5 502.4
57	11	6	1 756.66	.25	57	105 399.1	3 25	372 862.5	5 655.5
58	11	7	1 787.48	.26	58	107 248.3	3 30	380 475.0	5 808.6
59	11	8	1 818.30	.26	59	109 097.6	3 35	388 087.5	5 961.7
35 60	30.821	60	1 849.11	1849.27	60	110 946.9	3 40	395 700.0	6 114.8

Latitude 36° to 37°—Arcs of the Parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
36 00	25.046	50.09	75.14	100.18	125.23	150.28	175.32	200.37	225.41	1502.8	3005.5	4508.3	6011.0	7513.8
1	.041	.08	.12	.16	.20	.25	.29	.33	.36	2.5	4.9	7.3	9.8	2.2
2	.035	.07	.11	.14	.18	.22	.25	.28	.32	2.2	4.3	6.4	8.5	10.6
3	.030	.06	.09	.12	.15	.18	.21	.24	.27	1.8	3.6	5.4	7.2	9.1
4	.025	.05	.08	.10	.13	.15	.17	.20	.22	1.5	3.0	4.5	6.0	7.5
36 05	25.020	50.04	75.06	100.08	125.10	150.12	175.14	200.16	225.17	1501.2	3002.4	4503.5	6004.7	7505.9
6	.014	.03	.04	.06	.07	.09	.10	.11	.13	0.9	1.7	2.6	3.4	4.3
7	.009	.02	.03	.04	.05	.06	.06	.07	.08	0.6	1.1	1.6	2.2	2.7
8	.004	.01	.01	100.02	5.02	50.02	5.02	200.03	5.03	500.2	3000.5	500.7	6000.9	501.1
9	4.999	50.00	5.00	99.99	4.99	49.99	4.99	199.99	4.99	499.9	2999.8	499.7	5999.6	499.6
36 10	24.993	49.99	74.98	99.97	124.97	149.96	174.95	199.95	224.94	1499.6	2999.2	4498.8	5998.4	7498.0
11	.988	.98	.96	.95	.94	.93	.91	.90	.89	9.3	8.6	7.8	7.1	6.4
12	.983	.97	.95	.93	.92	.90	.88	.86	.84	9.0	7.9	6.9	5.8	4.8
13	.977	.95	.93	.91	.89	.86	.84	.82	.80	8.6	7.3	5.9	4.6	3.2
14	.972	.94	.92	.89	.86	.83	.80	.78	.75	8.3	6.6	5.0	3.3	1.6
36 15	24.967	49.93	74.90	99.87	124.84	149.80	174.77	199.73	224.70	1498.0	2996.0	4494.0	5992.0	7490.0
16	.961	.92	.88	.85	.81	.77	.73	.69	.65	7.7	5.4	3.0	90.7	88.4
17	.956	.91	.87	.82	.78	.74	.69	.65	.60	7.4	4.7	2.1	89.5	6.8
18	.951	.90	.85	.80	.75	.70	.65	.61	.56	7.0	4.1	1.1	8.2	5.2
19	.946	.89	.84	.78	.73	.67	.62	.56	.51	6.7	3.4	90.2	6.9	3.7
36 20	24.940	49.88	74.82	99.76	124.70	149.64	174.58	199.52	224.46	1496.4	2992.8	4489.2	5985.7	7482.1
21	.935	.87	.80	.74	.67	.61	.54	.48	.41	6.1	2.2	8.3	4.4	80.5
22	.930	.86	.79	.72	.65	.58	.51	.44	.36	5.8	1.5	7.3	3.1	78.9
23	.924	.85	.77	.70	.62	.54	.47	.39	.32	5.4	0.9	6.4	1.8	7.3
24	.919	.84	.76	.67	.59	.51	.43	.35	.27	5.1	90.2	5.4	80.5	5.7
36 25	24.914	49.83	74.74	99.65	124.57	149.48	174.39	199.31	224.22	1494.8	2989.6	4484.5	5979.3	7474.1
26	.908	.82	.72	.63	.54	.45	.36	.27	.17	4.5	9.0	3.5	8.0	2.5
27	.903	.81	.71	.61	.52	.42	.32	.22	.13	4.2	8.3	2.6	6.7	70.9
28	.898	.79	.69	.59	.49	.38	.28	.18	.08	3.8	7.7	1.6	5.4	69.3
29	.892	.78	.68	.57	.46	.35	.25	.14	4.03	3.5	7.0	80.7	4.2	7.7
36 30	24.887	49.77	74.66	99.55	124.44	149.32	174.21	199.10	223.98	1493.2	2986.4	4479.7	5972.9	7466.1
31	.882	.76	.64	.53	.41	.29	.17	.05	.93	2.9	5.8	8.7	1.6	4.5
32	.876	.75	.63	.50	.38	.26	.14	9.01	.88	2.6	5.1	7.7	70.3	2.9
33	.871	.74	.61	.48	.35	.22	.10	8.97	.84	2.2	4.5	6.8	69.0	61.3
34	.866	.73	.60	.46	.33	.19	.06	.92	.79	1.9	3.8	5.8	7.7	59.7
36 35	24.860	49.72	74.58	99.44	124.30	149.16	174.02	198.88	223.74	1491.6	2983.2	4474.8	5966.5	7458.1
36	.855	.71	.56	.42	.28	.13	3.99	.84	.69	1.3	2.6	3.8	5.2	6.5
37	.850	.70	.55	.40	.25	.10	.95	.80	.64	1.0	1.9	2.9	3.9	4.9
38	.844	.69	.53	.38	.22	.06	.91	.75	.60	0.6	1.3	1.9	2.6	3.3
39	.839	.68	.52	.35	.19	.03	.87	.71	.55	0.3	0.6	1.0	1.3	1.7
36 40	24.834	49.67	74.50	99.33	124.17	149.00	173.84	198.67	223.50	1490.0	2980.0	4470.0	5960.1	7450.1
41	.828	.66	.48	.31	.14	8.97	.80	.63	.45	89.7	79.4	69.0	58.8	48.5
42	.823	.65	.47	.29	.12	.94	.76	.58	.40	9.4	8.7	8.1	7.5	6.8
43	.817	.63	.45	.27	.09	.90	.72	.54	.36	9.0	8.1	7.1	6.2	5.2
44	.812	.62	.44	.25	.06	.87	.69	.50	.31	8.7	7.4	6.2	4.9	3.6
36 45	24.807	49.61	74.42	99.23	124.03	148.84	173.65	198.45	223.26	1488.4	2976.8	4465.2	5953.6	7442.0
46	.801	.60	.40	.21	4.01	.81	.61	.41	.21	8.1	6.2	4.2	2.3	40.4
47	.796	.59	.39	.18	3.98	.78	.57	.37	.16	7.8	5.5	3.3	51.0	38.8
48	.791	.58	.37	.16	.95	.74	.54	.33	.12	7.4	4.9	2.3	49.8	7.2
49	.785	.57	.36	.14	.93	.71	.50	.28	.07	7.1	4.2	1.4	8.5	5.6
36 50	24.780	49.56	74.34	99.12	123.90	148.68	173.46	198.24	223.02	1486.8	2973.6	4460.4	5947.2	7434.0
51	.775	.55	.32	.10	.87	.65	.42	.20	2.97	6.5	3.0	59.4	5.9	2.4
52	.769	.54	.31	.08	.85	.62	.38	.15	.92	6.2	2.3	8.4	4.6	30.7
53	.764	.53	.29	.06	.82	.58	.35	.11	.87	5.8	1.7	7.5	3.3	29.1
54	.758	.52	.28	.03	.79	.55	.31	.07	.82	5.5	1.0	6.5	2.0	7.5
36 55	24.753	49.51	74.26	99.01	123.76	148.52	173.27	198.02	222.78	1485.2	2970.4	4455.5	5940.7	7425.9
56	.748	.50	.24	8.99	.74	.49	.23	7.98	.73	4.9	69.7	4.5	39.4	4.3
57	.742	.49	.23	.97	.71	.46	.20	.94	.68	4.6	9.1	3.6	8.1	2.7
58	.737	.47	.21	.95	.68	.42	.16	.89	.63	4.2	8.4	2.6	6.8	21.0
59	.731	.46	.19	.93	.66	.39	.12	.85	.58	3.9	7.8	1.7	5.5	19.4
36 60	24.726	49.45	74.18	98.90	123.63	148.36	173.08	197.81	222.53	1483.6	2967.1	4450.7	5934.3	7417.8

Lat.	Latitude 36° to 37°—Meridional arcs.						Latitude 36°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 36° 30'		Value of 1'	Continuous sums of minutes from latitude 36° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
36 00	30.821			1849.27			0 1	1 502.8	0.1
1	1	1	30.82	.28	1	1 849.3	2	3 005.5	0.5
2	1	2	61.65	.28	2	3 698.5	3	4 508.3	1.2
3	1	3	92.47	.29	3	5 547.8	4	6 011.1	2.1
4	2	4	123.29	.29	4	7 397.1	5	7 513.8	3.2
36 05	30.822	5	154.12	1849.30	5	9 246.4	6	9 016.6	4.6
6	2	6	184.94	.30	6	11 095.7	7	10 519.3	6.3
7	2	7	215.77	.31	7	12 945.0	8	12 022.1	8.2
8	2	8	246.59	.31	8	14 794.3	9	13 524.8	10.4
9	2	9	277.41	.32	9	16 643.6	10	15 027.6	12.8
36 10	30.822	10	308.24	1849.32	10	18 493.0	15	22 541.4	28.9
11	2	1	339.06	.33	1	20 342.3	20	30 055.2	51.4
12	2	2	369.89	.33	2	22 191.6	25	37 568.9	80.3
13	2	3	400.71	.34	3	24 040.9	30	45 082.7	115.6
14	2	4	431.53	.34	4	25 890.3	35	52 596.4	157.4
36 15	30.822	15	462.36	1849.35	15	27 739.6	40	60 110.0	205.6
16	3	5	493.18	.35	5	29 589.0	45	67 623.6	260.2
17	3	6	524.00	.36	6	31 438.3	50	75 137.3	321.2
18	3	7	554.83	.36	7	33 287.7	55	82 650.8	388.7
19	3	8	585.65	.37	8	35 137.1			
36 20	30.823	20	616.48	1849.37	20	36 986.4	1 00	90 164.3	462.5
21	3	1	647.30	.38	1	38 835.8	05	97 677.7	542.8
22	3	2	678.12	.38	2	40 685.2	10	105 191.0	629.5
23	3	3	708.95	.39	3	42 534.6	15	112 704.2	722.6
24	3	4	739.77	.40	4	44 384.0	20	120 217.4	822.2
36 25	30.823	25	770.59	1849.40	25	46 233.4	1 25	127 730.4	928.2
26	3	5	801.42	.41	5	48 082.8	30	135 243.4	1 040.6
27	4	6	832.24	.41	6	49 932.2	35	142 756.3	1 159.4
28	4	7	863.07	.42	7	51 781.6	40	150 269.1	1 284.7
29	4	8	893.89	.42	8	53 631.0	45	157 781.7	1 416.4
36 30	30.824	30	924.71	1849.43	30	55 480.4	1 50	165 294.3	1 554.5
31	4	1	955.54	.43	1	57 329.9	55	172 806.8	1 699.0
32	4	2	986.36	.44	2	59 179.3	2 00	180 319	1 850
33	4	3	1 017.18	.44	3	61 028.7	3 00	270 455	4 162
34	4	4	1 048.01	.45	4	62 878.2	4 00	360 562	7 399
36 35	30.824	35	1 078.83	1849.45	35	64 727.6	5 00	450 631	11 560
36	4	5	1 109.66	.46	5	66 577.1	6 00	540 653	16 645
37	4	6	1 140.48	.46	6	68 426.6	7 00	630 618	22 652
38	4	7	1 171.30	.47	7	70 276.0	8 00	720 517	29 583
39	5	8	1 202.13	.47	8	72 125.5	9 00	810 340	37 435
36 40	30.825	40	1 232.95	1849.48	40	73 975.0	10 00	900 078	46 209
41	5	1	1 263.77	.48	1	75 824.5	11 00	989 720	55 903
42	5	2	1 294.60	.49	2	77 673.9	12 00	1 079 259	66 515
43	5	3	1 325.42	.49	3	79 523.4	13 00	1 168 684	78 046
44	5	4	1 356.25	.50	4	81 372.9	14 00	1 257 987	90 494
36 45	30.825	45	1 387.07	1849.51	45	83 222.4	15 00	1 347 156	103 856
46	5	5	1 417.89	.51	5	85 071.9	16 00	1 436 184	118 133
47	5	6	1 448.72	.52	6	86 922.5	17 00	1 525 061	133 323
48	5	7	1 479.54	.52	7	88 772.0	18 00	1 613 777	149 423
49	5	8	1 510.36	.53	8	90 620.5	19 00	1 702 324	166 433
36 50	30.826	50	1 541.19	1849.53	50	92 470.0	20 00	1 790 691	184 350
51	6	1	1 572.01	.54	1	94 319.6	21 00	1 878 870	203 173
52	6	2	1 602.84	.54	2	96 169.1	22 00	1 966 851	222 899
53	6	3	1 633.66	.55	3	98 018.6	23 00	2 054 625	243 527
54	6	4	1 664.48	.55	4	99 868.2	24 00	2 142 183	265 055
36 55	30.826	55	1 695.31	1849.56	55	101 717.8	25 00	2 229 516	287 479
56	6	5	1 726.13	.56	5	103 567.3	26 00	2 316 613	310 798
57	6	6	1 756.95	.57	6	105 416.9	27 00	2 403 467	335 009
58	6	7	1 787.78	.57	7	107 266.5	28 00	2 490 068	360 111
59	6	8	1 818.60	.58	8	109 116.0	29 00	2 576 407	386 099
36 60	30.826	60	1 849.43	1849.58	60	110 965.6	30 00	2 662 475	412 971

Latitude 37° to 38°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
37 00	24.726	49.45	74.18	98.90	123.63	148.36	173.08	197.81	222.53	1483.6	2967.1	4450.7	5934.3	7417.8
1	.721	.44	.16	.88	.60	.33	.05	.77	.48	3.3	6.5	49.7	3.0	6.3
2	.715	.43	.15	.86	.57	.29	3.00	.72	.43	2.9	5.8	8.7	1.7	4.6
3	.710	.42	.13	.84	.55	.26	2.97	.68	.39	2.6	5.2	7.8	30.4	2.9
4	.704	.41	.11	.82	.52	.23	.93	.64	.34	2.3	4.5	6.8	29.1	1.3
37 05	24.699	49.40	74.10	98.80	123.49	148.19	172.89	197.59	222.29	1481.9	2963.9	4445.8	5927.8	7409.7
6	.694	.39	.08	.77	.46	.16	.85	.55	.24	1.6	3.2	4.8	6.5	8.1
7	.688	.38	.07	.75	.43	.13	.82	.51	.19	1.3	2.6	3.9	5.2	6.5
8	.683	.36	.05	.73	.41	.10	.78	.46	.15	1.0	1.9	2.9	3.9	4.8
9	.677	.35	.03	.71	.38	.06	.74	.42	.10	0.6	1.3	2.0	2.6	3.2
37 10	24.672	49.34	74.02	98.69	123.36	148.03	172.70	197.38	222.05	1480.3	2960.6	4441.0	5921.3	7401.6
11	.667	.33	4.00	.67	.33	8.00	.66	.33	2.00	80.0	60.0	40.0	20.0	400.0
12	.661	.32	3.98	.64	.30	7.97	.63	.29	1.95	79.7	59.3	39.0	18.7	398.3
13	.656	.31	.97	.62	.27	.93	.59	.25	.90	9.3	8.7	8.1	7.4	6.7
14	.650	.30	.95	.60	.25	.90	.55	.20	.85	9.0	8.0	7.1	6.1	5.1
37 15	24.645	49.29	73.93	98.58	123.22	147.87	172.51	197.16	221.81	1478.7	2957.4	4436.1	5914.8	7393.4
16	.639	.28	.92	.56	.20	.84	.48	.12	.76	8.4	6.7	5.1	3.5	1.8
17	.634	.27	.90	.54	.17	.81	.44	.07	.71	8.1	6.1	4.1	2.2	90.2
18	.629	.26	.89	.51	.14	.77	.40	7.03	.66	7.7	5.4	3.2	10.8	88.6
19	.623	.25	.87	.49	.12	.74	.36	6.98	.61	7.4	4.8	2.2	09.5	6.9
37 20	24.618	49.24	73.85	98.47	123.09	147.71	172.32	196.94	221.56	1477.1	2954.1	4431.2	5908.2	7385.3
21	.612	.23	.84	.45	.06	.68	.29	.90	.51	6.8	3.5	30.2	6.9	3.7
22	.607	.21	.82	.43	.04	.64	.24	.85	.46	6.4	2.8	29.2	5.6	2.0
23	.601	.20	.80	.41	3.01	.61	.21	.81	.41	6.1	2.2	8.3	4.3	80.4
24	.596	.19	.79	.38	2.98	.58	.17	.77	.36	5.8	1.5	7.3	3.0	78.8
37 25	24.590	49.18	73.77	98.36	122.95	147.54	172.13	196.72	221.32	1475.4	2950.9	4426.3	5901.7	7377.1
26	.585	.17	.75	.34	.93	.51	.09	.68	.27	5.1	50.2	5.3	900.4	5.5
27	.580	.16	.74	.32	.90	.48	.06	.64	.22	4.8	49.6	4.3	899.1	3.9
28	.574	.15	.72	.30	.87	.44	2.02	.59	.17	4.4	8.9	3.4	7.8	2.2
29	.569	.14	.71	.28	.85	.41	1.98	.55	.12	4.1	8.3	2.4	6.5	70.6
37 30	24.563	49.13	73.69	98.25	122.82	147.38	171.94	196.51	221.07	1473.8	2947.6	4421.4	5895.2	7369.0
31	.558	.12	.67	.23	.79	.35	.91	.46	1.02	3.5	6.9	20.4	4.9	7.3
32	.552	.11	.66	.21	.76	.31	.86	.42	0.97	3.1	6.3	19.4	3.5	5.7
33	.547	.09	.64	.19	.74	.28	.83	.37	.92	2.8	5.6	8.4	2.2	4.0
34	.541	.08	.62	.17	.71	.25	.79	.33	.87	2.5	5.0	7.5	90.9	2.4
37 35	24.536	49.07	73.61	98.14	122.68	147.22	171.75	196.29	220.82	1472.2	2944.3	4416.5	5888.6	7360.8
36	.530	.06	.59	.12	.65	.18	.71	.24	.78	1.8	3.6	5.5	7.3	59.1
37	.525	.05	.58	.10	.62	.15	.67	.20	.73	1.5	3.0	4.5	6.0	7.5
38	.519	.04	.56	.08	.60	.12	.64	.16	.68	1.2	2.3	3.5	4.7	5.8
39	.514	.03	.54	.06	.57	.08	.60	.11	.63	0.8	1.7	2.5	3.4	4.2
37 40	24.509	49.02	73.53	98.03	122.54	147.05	171.56	196.07	220.58	1470.5	2941.0	4411.5	5882.0	7352.6
41	.503	.01	.51	8.01	.51	7.02	.52	6.02	.53	70.2	40.3	10.5	80.7	50.9
42	.498	9.00	.49	7.99	.49	6.99	.48	5.98	.48	69.9	39.7	09.5	79.4	49.3
43	.492	8.98	.48	.97	.46	.95	.45	.94	.43	9.5	9.0	8.6	8.1	7.6
44	.487	.97	.46	.95	.43	.92	.41	.89	.38	9.2	8.4	7.6	6.8	6.0
37 45	24.481	48.96	73.44	97.92	122.40	146.89	171.37	195.85	220.33	1468.9	2937.7	4406.6	5875.5	7344.3
46	.476	.95	.43	.90	.38	.85	.33	.80	.28	8.5	7.0	5.6	4.1	2.7
47	.470	.94	.41	.88	.35	.82	.29	.76	.23	8.2	6.4	4.6	2.8	41.0
48	.465	.93	.39	.86	.32	.79	.26	.72	.18	7.9	5.7	3.7	1.5	39.4
49	.459	.92	.38	.84	.30	.75	.21	.67	.13	7.5	5.1	2.7	70.2	7.7
37 50	24.454	48.91	73.36	97.81	122.27	146.72	171.17	195.63	220.08	1467.2	2934.4	4401.7	5868.9	7336.1
51	.448	.90	.34	.79	.24	.69	.14	.58	20.03	6.9	3.7	400.7	7.5	4.4
52	.443	.89	.33	.77	.21	.66	.10	.54	19.98	6.6	3.1	399.7	6.2	2.8
53	.437	.87	.31	.75	.19	.62	.06	.50	.93	6.2	2.4	8.7	4.9	31.1
54	.432	.86	.30	.73	.16	.59	1.02	.45	.88	5.9	1.8	7.7	3.6	29.5
37 55	24.426	48.85	73.28	97.70	122.13	146.56	170.98	195.41	219.83	1465.6	2931.1	4396.7	5862.3	7327.8
56	.421	.84	.26	.68	.10	.52	.94	.36	.79	5.2	30.5	5.7	60.9	6.2
57	.415	.83	.25	.66	.07	.49	.91	.32	.74	4.9	29.8	4.7	59.6	4.5
58	.410	.82	.23	.64	.05	.46	.87	.28	.69	4.6	9.1	3.7	8.3	2.9
59	.404	.81	.21	.62	2.02	.42	.83	.23	.64	4.2	8.5	2.7	7.0	21.2
37 60	24.399	48.80	73.20	97.59	121.99	146.39	170.79	195.19	219.59	1463.9	2927.8	4391.7	5855.6	7319.6

Lat.	Latitude 37° to 38°—Meridional arcs.						Latitude 37°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 37° 30'		Value of 1'	Continuous sums of minutes from latitude 37° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
37 00	30.826			1849.58					
1	6	1	30.83	.59	1	1 849.6	0 1	1 483.6	0 1
2	7	2	61.66	.59	2	3 699.2	2	2 967.1	0 5
3	7	3	92.49	.60	3	5 548.8	3	4 450.7	1.2
4	7	4	123.32	.61	4	7 398.4	4	5 934.2	2.1
37 05	30.827	5	154.15	1849.61	5	9 248.0	0 5	7 417.8	3.3
6	7	6	184.97	.62	6	11 097.6	6	8 901.4	4.7
7	7	7	215.80	.62	7	12 947.2	7	10 384.9	6.4
8	7	8	246.63	.63	8	14 796.8	8	11 868.5	8.3
9	7	9	277.46	.63	9	16 646.5	9	13 352.1	10.5
37 10	30.827	10	308.29	1849.64	10	18 496.1	0 10	14 835.6	13.0
11	7	11	339.12	.64	11	20 345.7	15	22 253.4	29.2
12	7	12	369.95	.65	2	22 195.4	20	29 671.2	51.9
13	8	3	400.78	.65	3	24 045.0	25	37 089.0	81.2
14	8	4	431.61	.66	4	25 894.7	30	44 506.7	116.9
37 15	30.828	15	462.44	1849.66	15	27 744.4	0 35	51 924.4	159.1
16	8	6	493.26	.67	6	29 594.0	40	59 342.1	207.8
17	8	7	524.09	.67	7	31 443.7	45	66 759.7	263.0
18	8	8	554.92	.68	8	33 293.4	50	74 177.2	324.6
19	8	9	585.75	.68	9	35 143.1	55	81 594.7	392.8
37 20	30.828	20	616.58	1849.69	20	36 992.7	1 00	89 012.2	467.5
21	8	1	647.41	.69	1	38 842.4	05	96 429.6	548.6
22	8	2	678.24	.70	2	40 692.1	10	103 846.9	636.3
23	8	3	709.07	.71	3	42 541.8	15	111 264.1	730.4
24	9	4	739.90	.71	4	44 391.5	20	118 681.2	831.1
37 25	30.829	25	770.73	1849.72	25	46 241.3	1 25	126 098.3	938.2
26	9	5	801.56	.72	5	48 091.0	30	133 515.2	1 051.8
27	9	6	832.38	.73	6	49 940.7	35	140 932.1	1 171.9
28	9	7	863.21	.73	7	51 790.4	40	148 348.8	1 298.5
29	9	8	894.04	.74	8	53 640.2	45	155 765.4	1 431.6
37 30	30.829	30	924.87	1849.74	30	55 489.9	1 50	163 181.9	1 571.2
31	9	1	955.70	.75	1	57 339.6	55	170 598.3	1 717.3
32	9	2	986.53	.75	2	59 189.4	2 00	178 015	1 870
33	9	3	1 017.36	.76	3	61 039.1	3 00	266 997	4 207
34	9	4	1 048.19	.76	4	62 888.9	4 00	355 951	7 479
37 35	30.829	35	1 079.02	1849.77	35	64 738.7	5 00	444 865	11 685
36	30	5	1 109.85	.77	5	66 588.4	6 00	533 730	16 824
37	0	6	1 140.67	.78	6	68 438.2	7 00	622 536	22 896
38	0	7	1 171.50	.78	7	70 288.0	8 00	711 273	29 901
39	0	8	1 202.33	.79	8	72 137.8	9 00	799 932	37 838
37 40	30.830	40	1 233.16	1849.80	40	73 987.6	10 00	888 503	46 706
41	0	1	1 263.99	.80	1	75 837.4	11 00	976 975	56 503
42	0	2	1 294.82	.81	2	77 687.2	12 00	1 065 340	67 229
43	0	3	1 325.65	.81	3	79 537.0	13 00	1 153 587	78 882
44	0	4	1 356.48	.82	4	81 386.8	14 00	1 241 707	91 462
37 45	30.830	45	1 387.31	1849.82	45	83 236.6	15 00	1 329 690	104 967
46	0	5	1 418.14	.83	5	85 086.5	16 00	1 417 526	119 395
47	1	6	1 448.96	.83	6	86 936.3	17 00	1 505 206	134 745
48	1	7	1 479.79	.84	7	88 786.1	18 00	1 592 721	151 015
49	1	8	1 510.62	.84	8	90 636.0	19 00	1 680 059	168 203
37 50	30.831	50	1 541.45	1849.85	50	92 485.8	20 00	1 767 211	186 307
51	1	1	1 572.28	.85	1	94 335.7	21 00	1 854 169	205 326
52	1	2	1 603.11	.86	2	96 185.5	22 00	1 940 922	225 258
53	1	3	1 633.94	.86	3	98 035.4	23 00	2 027 462	246 099
54	1	4	1 664.77	.87	4	99 885.2	24 00	2 113 777	267 849
37 55	30.831	55	1 695.60	1849.88	55	101 735.1	25 00	2 199 860	290 503
56	1	5	1 726.43	.88	5	103 585.0	26 00	2 285 699	314 061
57	1	6	1 757.26	.89	6	105 434.9	27 00	2 371 287	338 519
58	2	7	1 788.08	.89	7	107 284.8	28 00	2 456 612	363 874
59	2	8	1 818.91	.90	8	109 134.7	29 00	2 541 667	390 125
37 60	30.832	60	1 849.74	1849.90	60	110 984.5	30 00	2 626 441	417 267

Latitude 38° to 39°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
38 00	24.399	48.80	73.20	97.59	121.99	146.39	170.79	195.19	219.59	1463.9	2927.8	4391.7	5855.6	7319.6
1	.393	.79	.18	.57	.96	.36	.75	.15	.54	3.6	7.1	90.7	4.3	7.9
2	.387	.78	.16	.55	.94	.32	.71	.10	.49	3.2	6.5	89.7	3.0	6.2
3	.382	.77	.15	.53	.91	.29	.67	.06	.44	2.9	5.8	88.7	1.7	4.6
4	.376	.76	.13	.51	.88	.26	.63	5.01	.39	2.6	5.2	7.7	50.3	2.9
38 05	24.371	48.74	73.11	97.48	121.86	146.22	170.60	194.97	219.34	1462.3	2924.5	4386.7	5849.0	7311.3
6	.365	.73	.10	.46	.83	.19	.56	.93	.29	1.9	3.8	5.7	7.7	09.6
7	.360	.72	.08	.44	.80	.16	.52	.88	.24	1.6	3.2	4.7	6.3	7.9
8	.354	.71	.06	.42	.77	.13	.48	.84	.19	1.3	2.5	3.8	5.0	6.3
9	.349	.70	.05	.39	.75	.09	.44	.79	.14	0.9	1.9	82.8	3.7	4.6
38 10	24.343	48.69	73.03	97.37	121.72	146.06	170.40	194.75	219.09	1460.6	2921.2	4381.8	5842.4	7303.0
11	.338	.68	.01	.35	.69	6.03	.36	.71	9.04	60.3	20.5	80.8	41.0	301.3
12	.332	.67	3.00	.33	.66	5.99	.32	.66	8.99	59.9	19.8	79.8	39.7	299.6
13	.327	.66	2.98	.31	.64	.96	.29	.62	.89	9.6	9.2	8.8	8.4	8.0
14	.321	.65	.96	.29	.61	.93	.25	.57	.84	9.3	8.5	7.8	7.0	6.3
38 15	24.315	48.63	72.95	97.26	121.58	145.89	170.21	194.53	218.84	1458.9	2917.8	4376.8	5835.7	7294.6
16	.310	.62	.93	.24	.55	.86	.17	.48	.79	8.6	7.2	5.8	4.4	3.0
17	.304	.61	.91	.22	.52	.83	.13	.44	.74	8.3	6.5	4.8	3.0	91.3
18	.299	.60	.90	.19	.50	.79	.09	.39	.69	7.9	5.8	3.8	1.7	89.6
19	.293	.59	.88	.17	.47	.76	.05	.35	.64	7.6	5.2	2.8	30.4	8.0
38 20	24.288	48.58	72.86	97.15	121.44	145.73	170.01	194.30	218.59	1457.3	2914.5	4371.8	5829.0	7286.3
21	.282	.57	.85	.13	.41	.69	69.97	.26	.54	6.9	3.8	70.8	7.7	4.6
22	.276	.56	.83	.11	.38	.66	.93	.21	.49	6.6	3.2	69.8	6.4	2.9
23	.271	.54	.81	.08	.36	.63	.89	.17	.44	6.3	2.5	8.8	5.0	81.3
24	.265	.53	.80	.06	.33	.59	.85	.12	.39	5.9	1.9	7.8	3.7	79.6
38 25	24.260	48.52	72.78	97.04	121.30	145.56	169.82	194.08	218.34	1455.6	2911.2	4366.8	5822.3	7277.9
26	.254	.51	.76	.02	.27	.53	.78	4.04	.29	5.3	10.5	5.8	21.0	6.3
27	.249	.50	.75	7.00	.24	.49	.74	3.99	.24	4.9	9.8	4.8	19.7	4.6
28	.243	.48	.73	6.97	.22	.46	.70	.95	.19	4.6	9.2	3.7	8.3	2.9
29	.237	.47	.71	.95	.19	.42	.66	.90	.14	4.2	8.5	2.7	7.0	71.2
38 30	24.232	48.46	72.70	96.93	121.16	145.39	169.62	193.86	218.09	1453.9	2907.8	4361.7	5815.7	7269.6
31	.226	.45	.68	.91	.13	.36	.58	.82	8.04	3.6	7.1	60.7	4.3	7.9
32	.221	.44	.66	.88	.10	.32	.54	.77	7.99	3.2	6.5	59.7	3.0	6.2
33	.215	.43	.65	.86	.08	.29	.50	.73	.94	2.9	5.8	8.7	1.6	4.5
34	.210	.42	.63	.84	.05	.26	.46	.68	.89	2.6	5.2	7.7	10.3	2.9
38 35	24.204	48.40	72.61	96.81	121.02	145.22	169.43	193.63	217.83	1452.2	2904.5	4356.7	5808.9	7261.2
36	.198	.39	.60	.79	0.99	.19	.39	.59	.78	1.9	3.8	5.7	7.6	59.5
37	.193	.38	.58	.77	.96	.16	.35	.55	.73	1.6	3.1	4.7	6.3	7.8
38	.187	.37	.56	.75	.94	.12	.31	.50	.68	1.2	2.5	3.7	4.9	6.1
39	.182	.36	.55	.73	.91	.09	.27	.45	.63	0.9	1.8	2.7	3.6	4.5
38 40	24.176	48.35	72.53	96.70	120.88	145.06	169.23	193.41	217.58	1450.6	2901.1	4351.7	5802.2	7252.8
41	.170	.34	.51	.68	.85	5.02	.19	.37	.53	0.2	900.4	50.7	800.9	51.1
42	.165	.33	.49	.66	.82	4.99	.15	.32	.48	49.9	899.7	49.7	799.5	49.4
43	.159	.32	.48	.64	.80	.96	.11	.28	.43	9.6	9.1	8.6	7.2	7.7
44	.154	.31	.46	.61	.77	.92	.07	.23	.38	9.2	8.4	7.6	6.8	6.1
38 45	24.148	48.29	72.44	96.59	120.74	144.89	169.04	193.19	217.33	1448.9	2897.7	4346.6	5795.5	7244.4
46	.142	.28	.43	.57	.71	.85	9.00	.14	.28	8.5	7.0	5.6	4.1	2.7
47	.137	.27	.41	.55	.68	.82	8.96	.10	.23	8.2	6.4	4.6	2.8	41.0
48	.131	.26	.39	.52	.66	.79	.92	.05	.18	7.9	5.7	3.6	1.5	39.3
49	.125	.25	.38	.50	.63	.75	.88	3.01	.13	7.5	5.1	2.6	90.1	7.6
38 50	24.120	48.24	72.36	96.48	120.60	144.72	168.84	192.96	217.08	1447.2	2894.4	4341.6	5788.8	7236.0
51	.114	.23	.34	.46	.57	.69	.80	.92	7.03	6.9	3.7	40.6	7.4	4.3
52	.109	.22	.33	.43	.54	.65	.76	.87	6.98	6.5	3.0	39.6	6.1	2.6
53	.103	.21	.31	.41	.52	.62	.72	.83	.93	6.2	2.4	8.5	4.7	30.9
54	.097	.20	.29	.39	.49	.58	.68	.78	.88	5.8	1.7	7.5	3.3	29.2
38 55	24.092	48.18	72.28	96.36	120.46	144.55	168.64	192.74	216.82	1445.5	2891.0	4336.5	5782.0	7227.5
56	.086	.17	.26	.34	.43	.52	.60	.69	.77	5.2	90.3	5.5	80.6	5.8
57	.080	.16	.24	.32	.40	.48	.56	.65	.72	4.8	89.6	4.5	79.3	4.1
58	.075	.15	.22	.30	.38	.45	.52	.60	.67	4.5	9.0	3.4	7.9	2.4
59	.069	.14	.21	.28	.35	.41	.48	.56	.62	4.1	8.3	2.4	6.6	20.7
38 60	24.063	48.13	72.19	96.25	120.32	144.38	168.44	192.51	216.57	1443.8	2887.6	4331.4	5775.2	7219.0

Lat.	Latitude 38° to 39°—Meridional arcs.						Latitude 38°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 38° 30'		Value of 1'	Continuous sums of minutes from latitude 38° 00'		Longitude.	X	Y
° ' "	Meters.	''	Meters.	Meters.	' "	Meters.	° ' "	Meters.	Meters.
38 00	30.832			1849.90			0 1	1 463.9	0.1
1	2	1	30.83	.91	1	1 849.9	2	2 927.8	0.5
2	2	2	61.67	.91	2	3 699.8	3	4 391.7	1.2
3	2	3	92.50	.92	3	5 549.7	4	5 855.6	2.1
4	2	4	123.34	.92	4	7 399.6	5	7 319.6	3.3
38 05	30.832	5	154.17	1849.93	5	9 249.6	6	8 783.5	4.7
6	2	5	185.01	.93	6	11 099.5	7	10 247.4	6.4
7	2	6	215.84	.94	7	12 949.4	8	11 711.3	8.4
8	2	7	246.67	.94	8	14 799.4	9	13 175.2	10.6
9	2	8	277.51	.95	9	16 649.3			
38 10	30.833	10	308.34	1849.95	10	18 499.3	0 10	14 639.1	13.1
11	3	1	339.18	.96	1	20 349.2	15	21 958.6	29.5
12	3	2	370.01	.97	2	22 199.2	20	29 278.2	52.4
13	3	3	400.85	.97	3	24 049.2	25	36 597.6	81.9
14	3	4	431.68	.98	4	25 899.1	30	43 917.1	118.0
38 15	30.833	15	462.52	1849.98	15	27 749.1	0 35	51 236.5	160.6
16	3	5	493.35	.99	5	29 599.1	40	58 555.9	209.8
17	3	6	524.18	49.99	6	31 449.1	45	65 875.3	265.5
18	3	7	555.02	50.00	7	33 299.1	50	73 194.6	327.7
19	3	8	585.85	.00	8	35 149.1	55	80 513.8	396.5
38 20	30.833	20	616.69	1850.01	20	36 999.1	1 00	87 833.0	471.9
21	4	1	647.52	.01	1	38 849.1	05	95 152.1	553.8
22	4	2	678.36	.02	2	40 699.1	10	102 471.1	642.3
23	4	3	709.19	.02	3	42 549.1	15	109 790.0	737.3
24	4	4	740.02	.03	4	44 399.2	20	117 108.9	838.9
38 25	30.834	25	770.86	1850.03	25	46 249.2	1 25	124 427.6	947.1
26	4	5	801.69	.04	5	48 099.2	30	131 746.3	1 061.8
27	4	6	832.53	.05	6	49 949.3	35	139 064.8	1 183.0
28	4	7	863.36	.05	7	51 799.3	40	146 383.3	1 310.8
29	4	8	894.20	.06	8	53 649.4	45	153 701.6	1 445.2
38 30	30.834	30	925.03	1850.06	30	55 499.4	1 50	161 019.8	1 586.1
31	4	1	955.87	.07	1	57 349.5	55	168 337.9	1 733.5
32	5	2	986.70	.07	2	59 199.6	2 00	175 656	1 888
33	5	3	1 017.53	.08	3	61 049.7	3 00	263 458	4 247
34	5	4	1 048.37	.08	4	62 899.7	4 00	351 230	7 549
38 35	30.835	35	1 079.20	1850.09	35	64 749.8	5 00	438 962	11 795
36	5	5	1 110.04	.09	5	66 599.9	6 00	526 643	16 983
37	5	6	1 140.87	.10	6	68 450.0	7 00	614 263	23 112
38	5	7	1 171.71	.10	7	70 300.1	8 00	701 812	30 183
39	5	8	1 202.54	.11	8	72 150.2	9 00	789 280	38 195
38 40	30.835	40	1 233.37	1850.11	40	74 000.3	10 00	876 657	47 145
41	5	1	1 264.21	.12	1	75 850.4	11 00	963 933	57 034
42	5	2	1 295.04	.13	2	77 700.6	12 00	1 051 098	67 860
43	6	3	1 325.88	.13	3	79 550.7	13 00	1 138 141	79 622
44	6	4	1 356.71	.14	4	81 400.8	14 00	1 225 053	92 319
38 45	30.836	45	1 387.55	1850.14	45	83 251.0	15 00	1 311 823	105 949
46	6	5	1 418.38	.15	5	85 101.1	16 00	1 398 441	120 511
47	6	6	1 449.21	.15	6	86 951.3	17 00	1 484 899	136 002
48	6	7	1 480.05	.16	7	88 801.4	18 00	1 571 185	152 421
49	6	8	1 510.88	.16	8	90 651.6	19 00	1 657 289	169 767
38 50	30.836	50	1 541.72	1850.17	50	92 501.8	20 00	1 743 202	188 037
51	6	1	1 572.55	.17	1	94 351.9	21 00	1 828 914	207 229
52	6	2	1 603.39	.18	2	96 202.1	22 00	1 914 415	227 341
53	6	3	1 634.22	.18	3	98 052.3	23 00	1 999 694	248 370
54	6	4	1 665.06	.19	4	99 902.5	24 00	2 084 743	270 315
38 55	30.837	55	1 695.89	1850.20	55	101 752.7	25 00	2 169 551	293 172
56	7	5	1 726.72	.20	5	103 602.9	26 00	2 254 109	316 939
57	7	6	1 757.56	.21	6	105 453.1	27 00	2 338 406	341 613
58	7	7	1 788.39	.21	7	107 303.3	28 00	2 422 433	367 192
59	7	8	1 819.23	.22	8	109 153.5	29 00	2 506 181	393 672
38 60	30.837	60	1 850.06	1850.22	60	111 003.7	30 00	2 589 639	421 050

Latitude 39° to 40°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
• /														
39 00	24.063	48.13	72.19	96.25	120.32	144.38	168.44	192.51	216.57	1443.8	2887.6	4331.4	5775.2	7219.0
1	.058	.12	.17	.23	.29	.35	.40	.47	.52	3.5	6.9	30.4	3.9	7.4
2	.052	.11	.16	.21	.26	.31	.36	.42	.47	3.1	6.2	29.4	2.5	5.7
3	.047	.09	.14	.19	.23	.28	.32	.38	.42	2.8	5.6	8.4	71.2	4.0
4	.041	.08	.12	.16	.20	.25	.28	.33	.37	2.5	4.9	7.4	69.8	2.3
39 05	24.035	48.07	72.11	96.14	120.18	144.21	168.24	192.29	216.32	1442.1	2884.2	4326.3	5768.4	7210.6
6	.030	.06	.09	.12	.15	.18	.21	.24	.26	1.8	3.5	5.3	7.1	08.9
7	.024	.05	.07	.10	.12	.14	.17	.20	.21	1.4	2.8	4.3	5.7	7.2
8	.018	.03	.05	.07	.09	.11	.13	.15	.16	1.1	2.2	3.3	4.4	5.5
9	.013	.02	.04	.05	.06	.08	.09	.11	.11	0.8	1.5	2.3	3.0	3.8
39 10	24.007	48.01	72.02	96.03	120.03	144.04	168.05	192.06	216.06	1440.4	2880.8	4321.3	5761.7	7202.1
11	.001	8.00	2.00	6.01	20.01	4.01	8.01	2.01	6.01	40.1	80.1	20.2	60.3	200.4
12	3.996	7.99	1.99	5.98	19.97	3.97	7.97	1.97	5.96	39.7	79.4	19.2	58.9	198.7
13	.990	.98	.97	.96	.95	.94	.93	.92	.91	9.4	8.8	8.2	7.6	7.0
14	.984	.97	.95	.94	.92	.91	.89	.88	.86	9.1	8.1	7.2	6.2	5.3
39 15	23.979	47.96	71.94	95.91	119.89	143.87	167.85	191.83	215.80	1438.7	2877.4	4316.1	5754.9	7193.6
16	.973	.94	.92	.89	.86	.84	.81	.78	.75	8.4	6.7	5.1	3.5	1.9
17	.967	.93	.90	.87	.83	.80	.77	.74	.70	8.0	6.0	4.1	2.1	90.2
18	.962	.92	.88	.85	.81	.77	.73	.69	.65	7.7	5.4	3.1	50.8	88.5
19	.956	.91	.87	.82	.78	.74	.69	.65	.60	7.4	4.7	2.0	49.4	6.8
39 20	23.950	47.90	71.85	95.80	119.75	143.70	167.65	191.60	215.55	1437.0	2874.0	4311.0	5748.0	7185.1
21	.944	.89	.83	.78	.72	.67	.61	.56	.50	6.7	3.3	10.0	6.7	3.3
22	.939	.88	.82	.75	.69	.63	.57	.51	.45	6.3	2.6	09.0	5.3	81.6
23	.933	.87	.80	.73	.67	.60	.53	.47	.40	6.0	2.0	8.0	3.9	79.9
24	.927	.86	.78	.71	.64	.56	.49	.42	.35	5.6	1.3	6.9	2.6	8.2
39 25	23.922	47.84	71.77	95.69	119.61	143.53	167.45	191.38	215.29	1435.3	2870.6	4305.9	5741.2	7176.5
26	.916	.83	.75	.66	.58	.50	.41	.33	.24	5.0	69.9	4.9	39.8	4.8
27	.910	.82	.73	.64	.55	.46	.37	.29	.19	4.6	9.2	3.9	8.5	3.1
28	.905	.81	.71	.62	.53	.43	.33	.24	.14	4.3	8.6	2.8	7.1	71.4
29	.899	.80	.70	.60	.50	.39	.29	.20	.09	3.9	7.9	1.8	5.7	69.7
39 30	23.893	47.79	71.68	95.57	119.47	143.36	167.25	191.15	215.04	1433.6	2867.2	4300.8	5734.4	7168.0
31	.888	.78	.66	.55	.44	.33	.21	.10	4.99	3.3	6.5	299.8	3.0	6.3
32	.882	.77	.65	.53	.41	.29	.17	.06	.94	2.9	5.8	8.7	1.6	4.5
33	.876	.75	.63	.50	.38	.26	.13	1.01	.88	2.6	5.2	7.7	30.3	2.8
34	.870	.74	.61	.48	.35	.22	.09	0.97	.83	2.2	4.5	6.7	28.9	61.1
39 35	23.865	47.73	71.59	95.46	119.33	143.19	167.05	190.92	214.78	1431.9	2863.8	4295.6	5727.5	7159.4
36	.859	.72	.58	.44	.30	.16	7.01	.87	.73	1.6	3.1	4.6	6.1	7.7
37	.853	.71	.56	.42	.27	.12	6.97	.83	.68	1.2	2.4	3.6	4.8	6.0
38	.847	.69	.54	.39	.24	.09	.93	.78	.62	0.9	1.7	2.5	3.4	4.2
39	.842	.68	.53	.37	.21	.05	.89	.74	.57	0.5	1.0	1.5	2.0	2.5
39 40	23.836	47.67	71.51	95.35	119.18	143.02	166.85	190.69	214.52	1430.2	2860.3	4290.5	5720.7	7150.8
41	.830	.66	.49	.32	.15	2.98	.81	.64	.47	29.8	59.6	89.5	19.3	49.1
42	.825	.65	.47	.30	.12	.95	.77	.60	.42	9.5	8.9	8.4	7.9	7.4
43	.819	.64	.46	.28	.09	.91	.73	.55	.37	9.1	8.3	7.4	6.5	5.6
44	.813	.63	.44	.25	.06	.88	.69	.51	.32	8.8	7.6	6.4	5.1	3.9
39 45	23.807	47.61	71.42	95.23	119.03	142.84	166.65	190.46	214.26	1428.4	2856.9	4285.3	5713.8	7142.2
46	.802	.60	.41	.21	9.01	.81	.61	.41	.21	8.1	6.2	4.3	2.4	40.5
47	.796	.59	.39	.18	8.98	.78	.57	.37	.16	7.8	5.5	3.3	11.0	38.8
48	.790	.58	.37	.16	.95	.74	.53	.32	.11	7.4	4.8	2.2	09.6	7.0
49	.784	.57	.35	.14	.92	.71	.49	.28	.06	7.1	4.1	1.2	8.3	5.3
39 50	23.779	47.56	71.34	95.11	118.89	142.67	166.45	190.23	214.01	1426.7	2853.4	4280.2	5706.9	7133.6
51	.773	.55	.32	.09	.86	.64	.41	.18	3.96	6.4	2.7	79.1	5.5	1.9
52	.767	.53	.30	.07	.83	.60	.37	.14	.91	6.0	2.0	8.1	4.1	30.1
53	.761	.52	.28	.04	.81	.57	.33	.09	.85	5.7	1.4	7.1	2.7	28.4
54	.756	.51	.27	5.02	.78	.53	.29	.05	.80	5.3	0.7	6.0	1.4	6.7
39 55	23.750	47.50	71.25	94.99	118.75	142.50	166.25	190.00	213.75	1425.0	2850.0	4275.0	5700.0	7125.0
56	.744	.49	.23	.97	.72	.47	.21	89.95	.70	4.7	49.3	3.9	698.6	3.2
57	.738	.48	.21	.95	.69	.43	.17	.91	.65	4.3	8.6	2.9	7.2	21.5
58	.733	.46	.20	.93	.67	.40	.13	.86	.59	4.0	7.9	1.9	5.8	19.8
59	.727	.45	.18	.90	.63	.36	.09	.81	.54	3.6	7.2	70.8	4.4	8.1
39 60	23.721	47.44	71.16	94.88	118.61	142.33	166.05	189.77	213.49	1423.3	2846.5	4269.8	5693.1	7116.3

Lat.	Latitude 39° to 40°—Meridional arcs.						Latitude 39°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 39° 30'		Value of 1'	Continuous sums of minutes from latitude 39° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
39 00	30.837			1850.22			0 1	1 443.8	0.1
1	7	1	30.84	.23	1	1 850.2	0 2	2 887.6	0.5
2	7	2	61.68	.23	2	3 700.5	0 3	4 331.4	1.2
3	7	3	92.52	.24	3	5 550.7	0 4	5 775.2	2.1
4	7	4	123.36	.24	4	7 400.9	0 5	7 219.0	3.3
39 05	30.837	5	154.20	1850.25	5	9 251.2	0 6	8 662.9	4.8
6	8	6	185.04	.25	6	11 101.4	0 7	10 106.7	6.5
7	8	7	215.88	.26	7	12 951.7	0 8	11 550.5	8.5
8	8	8	246.72	.26	8	14 801.9	0 9	12 994.3	10.7
9	8	9	277.56	.27	9	16 652.2	0 10	14 438.1	13.2
39 10	30.838	10	308.40	1850.28	10	18 502.5	0 15	21 657.1	29.7
11	8	1	339.24	.28	1	20 352.8	0 20	28 876.1	52.9
12	8	2	370.08	.29	2	22 203.0	0 25	36 095.1	82.6
13	8	3	400.92	.29	3	24 053.3	0 30	43 314.1	118.9
14	8	4	431.76	.30	4	25 903.6	0 35	50 533.0	161.9
39 15	30.838	15	462.60	1850.30	15	27 753.9	0 40	57 751.9	211.5
16	8	5	493.44	.31	5	29 604.2	0 45	64 970.7	267.6
17	9	6	524.28	.31	6	31 454.5	0 50	72 189.5	330.4
18	9	7	555.11	.32	7	33 304.9	0 55	79 408.2	399.8
19	9	8	585.95	.32	8	35 155.2	1 00	86 626.9	475.8
39 20	30.839	20	616.79	1850.33	20	37 005.5	1 05	93 845.4	558.4
21	9	1	647.63	.33	1	38 855.8	1 10	101 063.9	647.6
22	9	2	678.47	.34	2	40 706.2	1 15	108 282.4	743.4
23	9	3	709.31	.35	3	42 556.5	1 20	115 500.7	845.8
24	9	4	740.15	.35	4	44 406.9	1 25	122 718.9	954.8
39 25	30.839	25	770.99	1850.36	25	46 257.2	1 30	129 937.1	1 070.4
26	9	5	801.83	.36	5	48 107.6	1 35	137 155.1	1 192.6
27	9	6	832.67	.37	6	49 957.9	1 40	144 373.0	1 321.4
28	40	7	863.51	.37	7	51 808.3	1 45	151 590.8	1 456.8
29	0	8	894.35	.38	8	53 658.7	1 50	158 808.4	1 598.8
39 30	30.840	30	925.19	1850.38	30	55 509.1	1 55	166 025.9	1 747.5
31	0	1	956.03	.39	1	57 359.4	2 00	173 243	1 903
32	0	2	986.87	.39	2	59 209.8	2 05	180 461	2 060
33	0	3	1 017.71	.40	3	61 060.2	2 10	187 679	2 217
34	0	4	1 048.55	.40	4	62 910.6	2 15	194 897	2 374
39 35	30.840	35	1 079.39	1850.41	35	64 761.0	2 20	202 115	2 531
36	0	5	1 110.23	.42	5	66 611.4	2 25	209 333	2 688
37	0	6	1 141.07	.42	6	68 461.9	2 30	216 551	2 845
38	0	7	1 171.91	.43	7	70 312.3	2 35	223 769	2 999
39	1	8	1 202.75	.43	8	72 162.7	2 40	230 987	3 154
39 40	30.841	40	1 233.59	1850.44	40	74 013.2	2 45	238 205	3 309
41	1	1	1 264.43	.44	1	75 863.6	2 50	245 423	3 464
42	1	2	1 295.27	.45	2	77 714.0	2 55	252 641	3 619
43	1	3	1 326.11	.45	3	79 564.5	3 00	259 859	3 774
44	1	4	1 356.95	.46	4	81 414.9	3 05	267 077	3 929
39 45	30.841	45	1 387.79	1850.46	45	83 265.4	3 10	274 295	4 084
46	1	5	1 418.63	.47	5	85 115.9	3 15	281 513	4 239
47	1	6	1 449.47	.47	6	86 966.3	3 20	288 731	4 394
48	1	7	1 480.31	.48	7	88 816.8	3 25	295 949	4 549
49	1	8	1 511.15	.49	8	90 667.3	3 30	303 167	4 704
39 50	30.842	50	1 541.99	1850.49	50	92 517.8	3 35	310 385	4 859
51	2	1	1 572.83	.50	1	94 368.3	3 40	317 603	5 014
52	2	2	1 603.67	.50	2	96 218.8	3 45	324 821	5 169
53	2	3	1 634.50	.51	3	98 069.3	3 50	332 039	5 324
54	2	4	1 665.34	.51	4	99 919.8	3 55	339 257	5 479
39 55	30.842	55	1 696.18	1850.52	55	101 770.3	4 00	346 475	5 634
56	2	5	1 727.02	.52	5	103 620.8	4 05	353 693	5 789
57	2	6	1 757.86	.52	6	105 471.4	4 10	360 911	5 944
58	2	7	1 788.70	.53	7	107 321.9	4 15	368 129	6 099
59	2	8	1 819.54	.54	8	109 172.4	4 20	375 347	6 254
39 60	30.842	60	1 850.38	1850.54	60	111 023.0	4 25	382 565	6 409

Latitude 40° to 41°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
40 00	23.721	47.44	71.16	94.88	118.61	142.33	166.05	189.77	213.49	1423.3	2846.5	4269.8	5693.1	7116.3
1	.715	.43	.15	.86	.58	.29	6.01	.72	.44	2.9	5.8	8.8	1.7	4.6
2	.710	.42	.13	.84	.55	.26	5.97	.68	.39	2.6	5.1	7.7	90.3	2.9
3	.704	.41	.11	.82	.52	.22	.93	.63	.33	2.2	4.5	6.7	88.9	11.1
4	.698	.40	.09	.79	.49	.19	.89	.58	.28	1.9	3.8	5.6	7.5	09.4
40 05	23.692	47.38	71.08	94.77	118.46	142.15	165.84	189.54	213.23	1421.5	2843.1	4264.6	5686.1	7107.7
6	.686	.37	.06	.75	.44	.12	.80	.49	.18	1.2	2.4	3.6	4.7	5.9
7	.681	.36	.04	.72	.41	.08	.76	.45	.13	0.8	1.7	2.5	3.4	4.2
8	.675	.35	.02	.70	.38	.05	.72	.40	.07	0.5	1.0	1.5	2.0	2.5
9	.669	.34	1.01	.68	.35	2.01	.68	.35	3.02	20.1	40.3	60.4	80.6	100.7
40 10	23.663	47.33	70.99	94.65	118.32	141.98	165.64	189.31	212.97	1419.8	2839.6	4259.4	5679.2	7099.0
11	.658	.32	.97	.63	.29	.95	.60	.26	.92	9.5	8.9	8.4	7.8	7.3
12	.652	.30	.96	.61	.26	.91	.56	.21	.87	9.1	8.2	7.3	6.4	5.5
13	.646	.29	.94	.58	.23	.88	.52	.17	.81	8.8	7.5	6.3	5.0	3.8
14	.640	.28	.92	.56	.20	.84	.48	.12	.76	8.4	6.8	5.2	3.6	2.0
40 15	23.634	47.27	70.90	94.54	118.18	141.81	165.44	189.07	212.71	1418.1	2836.1	4254.2	5672.2	7090.3
16	.629	.26	.89	.51	.15	.77	.40	9.03	.66	7.7	5.4	3.1	70.9	88.6
17	.623	.25	.87	.49	.12	.74	.36	8.98	.61	7.4	4.7	2.1	69.5	6.8
18	.617	.23	.85	.47	.09	.70	.32	.94	.55	7.0	4.0	1.1	8.1	5.1
19	.611	.22	.83	.44	.06	.67	.28	.89	.50	6.7	3.3	50.0	6.7	3.4
40 20	23.605	47.21	70.82	94.42	118.03	141.63	165.24	188.84	212.45	1416.3	2832.6	4249.0	5665.3	7081.6
21	.600	.20	.80	.40	8.00	.60	.20	.80	.40	6.0	1.9	7.9	3.9	79.9
22	.594	.19	.78	.37	7.97	.56	.16	.75	.34	5.6	1.2	6.9	2.5	8.1
23	.588	.18	.76	.35	.94	.53	.12	.70	.29	5.3	30.6	5.8	61.1	6.4
24	.582	.16	.75	.33	.91	.49	.08	.66	.24	4.9	29.9	4.8	59.7	4.6
40 25	23.576	47.15	70.73	94.31	117.89	141.46	165.03	188.61	212.18	1414.6	2829.2	4243.7	5658.3	7072.9
26	.570	.14	.71	.28	.85	.42	4.99	.56	.13	4.2	8.5	2.7	6.9	71.1
27	.565	.13	.69	.26	.83	.39	.95	.52	.08	3.9	7.8	1.6	5.5	69.4
28	.559	.12	.68	.24	.80	.35	.91	.47	2.03	3.5	7.1	40.6	4.1	7.7
29	.553	.10	.66	.21	.77	.32	.87	.42	1.97	3.2	6.4	39.5	2.7	5.9
40 30	23.547	47.09	70.64	94.19	117.74	141.28	164.83	188.38	211.92	1412.8	2825.7	4238.5	5651.3	7064.2
31	.541	.08	.62	.17	.71	.25	.79	.33	.87	2.5	5.0	7.4	49.9	2.4
32	.536	.07	.61	.14	.68	.21	.75	.28	.82	2.1	4.3	6.4	8.5	60.7
33	.530	.06	.59	.12	.65	.18	.71	.24	.76	1.8	3.6	5.3	7.1	58.9
34	.524	.05	.57	.10	.62	.14	.67	.19	.71	1.4	2.9	4.3	5.7	7.2
40 35	23.518	47.04	70.55	94.07	117.59	141.11	164.63	188.14	211.66	1411.1	2822.2	4233.2	5644.3	7055.4
36	.512	.02	.54	.05	.56	.07	.58	.10	.61	0.7	1.5	2.2	2.9	3.7
37	.506	.01	.52	.03	.53	.04	.54	.05	.56	0.4	0.8	1.1	1.5	1.9
38	.501	7.00	.50	4.00	.50	1.00	.50	8.00	.50	10.0	20.1	30.1	40.1	50.2
39	.495	6.99	.48	3.98	.47	0.97	.46	7.96	.45	09.7	19.4	29.0	38.7	48.4
40 40	23.489	46.98	70.47	93.96	117.44	140.93	164.42	187.91	211.40	1409.3	2818.7	4228.0	5637.3	7046.7
41	.483	.97	.45	.93	.41	.90	.38	.86	.35	9.0	8.0	6.9	5.9	4.9
42	.477	.95	.43	.91	.38	.86	.34	.82	.29	8.6	7.3	5.9	4.5	3.1
43	.471	.94	.41	.88	.35	.83	.30	.77	.24	8.3	6.5	4.8	3.1	41.4
44	.465	.93	.40	.86	.32	.79	.26	.72	.19	7.9	5.8	3.8	1.7	39.6
40 45	23.460	46.92	70.38	93.84	117.30	140.76	164.22	187.68	211.13	1407.6	2815.1	4222.7	5630.3	7037.9
46	.454	.91	.36	.81	.27	.72	.17	.63	.08	7.2	4.4	1.7	28.9	6.1
47	.448	.90	.34	.79	.24	.69	.13	.58	1.03	6.9	3.7	20.6	7.5	4.4
48	.442	.88	.33	.77	.21	.65	.09	.54	0.98	6.5	3.0	19.6	6.1	2.6
49	.436	.87	.31	.74	.18	.62	.05	.49	.92	6.2	2.3	8.5	4.7	30.8
40 50	23.430	46.86	70.29	93.72	117.15	140.58	164.01	187.44	210.87	1405.8	2811.6	4217.5	5623.3	7029.1
51	.424	.85	.27	.70	.12	.55	3.97	.40	.82	5.5	0.9	6.4	1.9	7.3
52	.419	.84	.26	.67	.09	.51	.93	.35	.77	5.1	10.2	5.3	20.4	5.6
53	.413	.83	.24	.65	.06	.48	.89	.30	.71	4.8	09.5	4.3	19.0	3.8
54	.407	.81	.22	.63	.03	.44	.85	.25	.66	4.4	8.8	3.2	7.6	2.0
40 55	23.401	46.80	70.20	93.60	117.01	140.41	163.81	187.21	210.61	1404.1	2808.1	4212.2	5616.2	7020.3
56	.395	.79	.18	.58	6.98	.37	.76	.16	.55	3.7	7.4	1.1	4.8	18.5
57	.389	.78	.17	.56	.95	.33	.72	.11	.50	3.3	6.7	10.0	3.4	6.7
58	.383	.77	.15	.53	.92	.30	.68	.07	.45	3.0	6.0	09.0	2.0	5.0
59	.377	.75	.13	.51	.89	.26	.64	7.02	.39	2.6	5.3	7.9	10.6	3.2
40 60	23.372	46.74	70.11	93.49	116.86	140.23	163.60	186.97	210.34	1402.3	2804.6	4206.9	5609.2	7011.5

Lat.	Latitude 40° to 41°—Meridional arcs.						Latitude 40°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 40° 30'		Value of 1'	Continuous sums of minutes from latitude 40° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
40 00	30.842			1850.54			0 1	1 423.3	0.1
1	2	1	30.85	.55	1	1 850.5	0 2	2 846.5	0.5
2	3	2	61.69	.56	2	3 701.1	0 3	4 269.8	1.2
3	3	3	92.54	.56	3	5 551.7	0 4	5 693.0	2.1
4	3	4	123.38	.57	4	7 402.2	0 5	7 116.3	3.3
40 05	30.843	5	154.23	1850.57	5	9 252.8	0 6	8 539.6	4.8
6	3	6	185.07	.58	6	11 103.4	0 7	9 962.8	6.5
7	3	7	215.92	.58	7	12 953.9	0 8	11 386.1	8.5
8	3	8	246.76	.59	8	14 804.5	0 9	12 809.3	10.8
9	3	9	277.61	.59	9	16 655.1			
40 10	30.843	10	308.45	1850.60	10	18 505.7	0 10	14 232.6	13.3
11	3	11	339.30	.60	11	20 356.3	0 15	21 349.0	29.9
12	3	12	370.14	.61	12	22 206.9	0 20	28 465.3	53.2
13	4	13	400.99	.61	13	24 057.5	0 25	35 581.6	83.2
14	4	14	431.83	.62	14	25 908.2	0 30	42 697.8	119.8
40 15	30.844	15	462.68	1850.63	15	27 758.8	0 35	49 814.0	163.0
16	4	16	493.52	.63	16	29 609.4	0 40	56 930.2	212.9
17	4	17	524.37	.64	17	31 460.0	0 45	64 046.3	269.4
18	4	18	555.21	.64	18	33 310.7	0 50	71 162.4	332.6
19	4	19	586.06	.65	19	35 161.3	0 55	78 278.4	402.5
40 20	30.844	20	616.90	1850.65	20	37 012.0	1 00	85 394.3	479.0
21	4	21	647.75	.66	21	38 862.6	1 05	92 510.1	562.2
22	4	22	678.59	.66	22	40 713.3	1 10	99 625.9	652.0
23	4	23	709.44	.67	23	42 564.0	1 15	106 741.6	748.5
24	5	24	740.28	.67	24	44 414.6	1 20	113 857.2	851.6
40 25	30.845	25	771.13	1850.68	25	46 265.3	1 25	120 972.7	961.4
26	5	26	801.97	.68	26	48 116.0	1 30	128 088.1	1 077.8
27	5	27	832.82	.69	27	49 966.7	1 35	135 203.4	1 200.8
28	5	28	863.66	.70	28	51 817.4	1 40	142 318.5	1 330.5
29	5	29	894.51	.70	29	53 668.1	1 45	149 433.6	1 466.9
40 30	30.845	30	925.35	1850.71	30	55 518.8	1 50	156 548.5	1 609.9
31	5	31	956.20	.71	31	57 369.5	1 55	163 663.3	1 759.6
32	5	32	987.04	.72	32	59 220.2	2 00	170 778	1 916
33	5	33	1 017.89	.72	33	61 070.9	2 05	177 893	2 079.1
34	5	34	1 048.73	.73	34	62 921.6	2 10	185 008	2 242.2
40 35	30.846	35	1 079.58	1850.73	35	64 772.4	2 15	192 123	2 405.3
36	6	36	1 110.42	.74	36	66 623.1	2 20	199 238	2 568.4
37	6	37	1 141.27	.74	37	68 473.8	2 25	206 353	2 731.5
38	6	38	1 172.11	.75	38	70 324.6	2 30	213 468	2 894.6
39	6	39	1 202.96	.76	39	72 175.3	2 35	220 583	3 057.7
40 40	30.846	40	1 233.80	1850.76	40	74 026.1	2 40	227 698	3 220.8
41	6	41	1 264.65	.77	41	75 876.9	2 45	234 813	3 383.9
42	6	42	1 295.49	.77	42	77 727.6	2 50	241 928	3 547.0
43	6	43	1 326.34	.78	43	79 578.4	2 55	249 043	3 710.1
44	6	44	1 357.18	.78	44	81 429.2	3 00	256 158	3 873.2
40 45	30.846	45	1 388.03	1850.79	45	83 280.0	3 05	263 273	4 036.3
46	7	46	1 418.88	.79	46	85 130.8	3 10	270 388	4 199.4
47	7	47	1 449.72	.80	47	86 981.6	3 15	277 503	4 362.5
48	7	48	1 480.57	.80	48	88 832.4	3 20	284 618	4 525.6
49	7	49	1 511.41	.81	49	90 683.2	3 25	291 733	4 688.7
40 50	30.847	50	1 542.26	1850.81	50	92 534.0	3 30	298 848	4 851.8
51	7	51	1 573.10	.82	51	94 384.8	3 35	305 963	5 014.9
52	7	52	1 603.95	.83	52	96 235.6	3 40	313 078	5 178.0
53	7	53	1 634.79	.83	53	98 086.5	3 45	320 193	5 341.1
54	7	54	1 665.64	.84	54	99 937.3	3 50	327 308	5 504.2
40 55	30.847	55	1 696.48	1850.84	55	101 788.1	3 55	334 423	5 667.3
56	7	56	1 727.33	.85	56	103 639.0	4 00	341 538	5 830.4
57	8	57	1 758.17	.85	57	105 489.8	4 05	348 653	5 993.5
58	8	58	1 789.02	.86	58	107 340.7	4 10	355 768	6 156.6
59	8	59	1 819.86	.86	59	109 191.5	4 15	362 883	6 319.7
40 60	30.848	60	1 850.71	1850.87	60	111 042.4	4 20	370 000	6 482.8

Latitude 41° to 42°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
41 00	23.372	46.74	70.11	93.49	116.86	140.23	163.60	186.97	210.34	1402.3	2804.6	4206.9	5609.2	7011.5
I	.366	.73	.10	.46	.83	.19	.56	.92	.29	1.9	3.9	5.8	7.7	009.7
II	.360	.72	.08	.44	.80	.16	.52	.88	.23	1.6	3.2	4.7	6.3	7.9
3	.354	.71	.06	.41	.77	.12	.48	.83	.18	1.2	2.4	3.7	4.9	6.1
4	.348	.70	.04	.39	.74	.09	.44	.78	.13	0.9	1.7	2.6	3.5	4.4
41 05	23.342	46.68	70.03	93.37	116.71	140.05	163.39	186.74	210.08	1400.5	2801.0	4201.6	5602.1	7002.6
5	.336	.67	70.01	.34	.68	40.02	.35	.69	10.02	400.2	800.3	200.5	600.7	7000.8
7	.330	.66	69.99	.32	.65	39.98	.31	.64	09.97	399.8	799.6	199.4	599.2	6999.1
8	.324	.65	.97	.30	.62	.95	.27	.59	.92	9.5	8.9	8.4	7.8	7.3
9	.318	.64	.96	.27	.59	.91	.23	.55	.86	9.1	8.2	7.3	6.4	5.5
41 10	23.313	46.63	69.94	93.25	116.56	139.88	163.19	186.50	209.81	1398.8	2797.5	4196.3	5595.0	6993.8
11	.307	.61	.92	.23	.53	.84	.15	.45	.76	8.4	6.8	5.2	3.6	2.0
12	.301	.60	.90	.20	.50	.80	.11	.41	.71	8.0	6.1	4.1	2.2	90.2
13	.295	.59	.88	.18	.47	.77	.06	.36	.65	7.7	5.4	3.1	90.7	88.4
14	.289	.58	.87	.16	.44	.73	3.02	.31	.60	7.3	4.7	2.0	89.3	6.7
41 15	23.283	46.57	69.85	93.13	116.42	139.70	162.98	186.26	209.54	1397.0	2794.0	4190.9	5587.9	6984.9
16	.277	.55	.83	.11	.39	.66	.94	.22	.49	6.6	3.3	89.9	6.5	3.1
17	.271	.54	.81	.08	.36	.63	.90	.17	.44	6.3	2.5	8.8	5.0	81.3
18	.265	.53	.80	.06	.33	.59	.86	.12	.39	5.9	1.8	7.7	3.6	79.6
19	.259	.52	.78	.04	.30	.56	.81	.07	.33	5.6	1.1	6.7	2.2	7.8
41 20	23.253	46.51	69.76	93.01	116.27	139.52	162.77	186.03	209.28	1395.2	2790.4	4185.6	5580.8	6976.0
21	.247	.49	.74	2.99	.23	.48	.72	5.97	.22	4.8	89.7	4.5	79.4	4.2
22	.241	.48	.72	.97	.21	.45	.69	.93	.17	4.5	9.0	3.5	8.0	2.4
23	.236	.47	.71	.94	.18	.41	.65	.88	.12	4.1	8.2	2.4	6.5	70.7
24	.230	.46	.69	.92	.15	.38	.61	.84	.07	3.8	7.5	1.5	5.1	68.9
41 25	23.224	46.45	69.67	92.89	116.12	139.34	162.56	185.79	209.01	1393.4	2786.8	4180.3	5573.7	6967.1
26	.218	.44	.65	.87	.09	.31	.52	.74	8.96	3.1	6.1	79.2	2.3	5.3
27	.212	.42	.63	.85	.06	.27	.48	.69	.91	2.7	5.4	8.1	70.8	3.5
28	.206	.41	.62	.82	.03	.24	.44	.65	.85	2.4	4.7	7.1	69.4	1.8
29	.200	.40	.60	.80	6.00	.20	.40	.60	.80	2.0	4.0	6.0	8.0	60.0
41 30	23.194	46.39	69.58	92.78	115.97	139.16	162.36	185.55	208.75	1391.6	2783.3	4174.9	5566.6	6958.2
31	.188	.38	.56	.75	.94	.13	.32	.50	.69	1.3	2.6	3.8	5.1	6.4
32	.182	.36	.55	.73	.91	.09	.28	.46	.64	0.9	1.9	2.8	3.7	4.6
33	.176	.35	.53	.70	.88	.06	.23	.41	.58	0.6	1.1	1.7	2.3	2.8
34	.170	.34	.51	.68	.85	9.02	.19	.36	.53	90.2	80.4	70.7	60.8	51.1
41 35	23.164	46.33	69.49	92.66	115.82	138.99	162.15	185.31	208.48	1389.9	2779.7	4169.6	5559.4	6949.3
36	.158	.32	.47	.63	.79	.95	.11	.27	.43	9.5	9.0	8.5	8.0	7.5
37	.152	.30	.46	.61	.76	.91	.07	.22	.37	9.1	8.3	7.4	6.6	5.7
38	.146	.29	.44	.59	.73	.88	2.02	.17	.32	8.8	7.5	6.3	5.1	3.9
39	.140	.28	.42	.56	.70	.84	1.98	.12	.26	8.4	6.8	5.3	3.7	2.1
41 40	23.134	46.27	69.40	92.54	115.67	138.81	161.94	185.08	208.21	1388.1	2776.1	4164.2	5552.3	6940.3
41	.128	.26	.38	.51	.64	.77	.90	5.03	.16	7.7	5.4	3.1	50.8	38.5
42	.122	.24	.37	.49	.61	.73	.86	4.98	.10	7.3	4.7	2.0	49.4	6.7
43	.117	.23	.35	.47	.58	.70	.82	.93	8.05	7.0	4.0	61.0	8.0	5.0
44	.111	.22	.33	.44	.55	.66	.77	.88	7.99	6.6	3.2	59.9	6.5	3.2
41 45	23.105	46.21	69.31	92.42	115.52	138.63	161.73	184.84	207.94	1386.3	2772.5	4158.8	5545.1	6931.4
46	.099	.20	.30	.39	.49	.59	.69	.79	.89	5.9	1.8	7.7	3.7	29.6
47	.093	.19	.28	.37	.46	.56	.65	.74	.83	5.6	1.1	6.7	2.2	7.8
48	.087	.17	.26	.35	.43	.52	.61	.69	.78	5.2	70.4	5.6	40.8	6.0
49	.081	.16	.24	.32	.40	.48	.56	.65	.72	4.8	69.7	4.5	39.4	4.2
41 50	23.075	46.15	69.22	92.30	115.37	138.45	161.52	184.60	207.67	1384.5	2769.0	4153.4	5537.9	6922.4
51	.069	.14	.21	.27	.34	.41	.48	.55	.62	4.1	8.3	2.4	6.5	20.6
52	.063	.13	.19	.25	.31	.38	.44	.50	.56	3.8	7.5	1.3	5.0	18.8
53	.057	.11	.17	.23	.28	.34	.40	.45	.51	3.4	6.8	50.2	3.6	7.0
54	.051	.10	.15	.20	.25	.30	.35	.41	.45	3.0	6.1	49.1	2.2	5.2
41 55	23.045	46.09	69.13	92.18	115.22	138.27	161.31	184.36	207.40	1382.7	2765.4	4148.0	5530.7	6913.4
56	.039	.08	.12	.16	.19	.23	.27	.31	.35	2.3	4.7	7.0	29.3	11.6
57	.033	.07	.10	.13	.16	.20	.23	.26	.29	2.0	3.9	5.9	7.8	09.8
58	.027	.05	.08	.11	.13	.16	.19	.21	.24	1.6	3.2	4.8	6.4	8.0
59	.021	.04	.06	.08	.10	.12	.14	.17	.18	1.2	2.5	3.7	5.0	6.2
41 60	23.015	46.03	69.04	92.06	115.07	138.09	161.10	184.12	207.13	1380.9	2761.8	4142.7	5523.5	6904.4

Lat.	Latitude 41° to 42°—Meridional arcs.						Latitude 41°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 41° 30'		Value of 1'	Continuous sums of minutes from latitude 41° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
41 00	30.848			1850.87			0 1	1 402.3	0.1
1	8	1	30.85	.87	1	1 850.9	2	2 804.6	0.5
2	8	2	61.70	.88	2	3 701.7	3	4 206.9	1.2
3	8	3	92.55	.89	3	5 552.6	4	5 609.2	2.1
4	8	4	123.40	.89	4	7 403.5	5	7 011.5	3.3
41 05	30.848	5	154.25	1850.90	5	9 254.4	6	8 413.7	4.8
6	8	6	185.10	.90	6	11 105.3	7	9 816.0	6.6
7	8	7	215.95	.91	7	12 956.2	8	11 218.3	8.6
8	9	8	246.80	.91	8	14 807.1	9	12 620.6	10.8
9	9	9	277.65	.92	9	16 658.0			
41 10	30.849	10	308.51	1850.92	10	18 509.0	0 10	14 022.9	13.4
11	9	1	339.36	.93	11	20 359.9	15	21 034.3	30.1
12	9	2	370.21	.93	12	22 210.8	20	28 045.7	53.5
13	9	3	401.06	.94	13	24 061.8	25	35 057.1	83.6
14	9	4	431.91	.95	14	25 912.7	30	42 068.5	120.4
41 15	30.849	15	462.76	1850.95	15	27 763.7	0 35	49 079.8	163.9
16	9	6	493.61	.96	16	29 614.6	40	56 091.1	214.1
17	9	7	524.46	.96	17	31 465.6	45	63 102.3	270.9
18	9	8	555.31	.97	18	33 316.5	50	70 113.5	334.5
19	50	9	586.16	.97	19	35 167.5	55	77 124.6	404.7
41 20	30.850	20	617.01	1850.98	20	37 018.5	1 00	84 135.6	481.7
21	0	1	647.86	.98	21	38 869.5	05	91 146.6	565.3
22	0	2	678.71	.99	22	40 720.4	10	98 157.4	655.6
23	0	3	709.56	0.99	23	42 571.4	15	105 168.2	752.6
24	0	4	740.41	1.00	24	44 422.4	20	112 178.9	856.3
41 25	30.850	25	771.26	1851.01	25	46 273.4	1 25	119 189.5	966.7
26	0	6	802.11	.01	26	48 124.4	30	126 200.0	1 083.8
27	0	7	832.96	.02	27	49 975.4	35	133 210.3	1 207.6
28	0	8	863.82	.02	28	51 826.5	40	140 220.6	1 338.0
29	0	9	894.67	.03	29	53 677.5	45	147 230.7	1 475.1
41 30	30.851	30	925.52	1851.03	30	55 528.5	1 50	154 240.7	1 619.0
31	1	1	956.37	.04	31	57 379.6	55	161 250.5	1 769.5
32	1	2	987.22	.04	32	59 230.6	2 00	168 260	1 927
33	1	3	1 018.07	.05	33	61 081.6	3 00	252 363	4 335
34	1	4	1 048.92	.05	34	62 932.7	4 00	336 432	7 706
41 35	30.851	35	1 079.77	1851.06	35	64 783.8	5 00	420 457	12 039
36	1	6	1 110.62	.07	36	66 634.8	6 00	504 428	17 335
37	1	7	1 141.47	.07	37	68 485.9	7 00	588 332	23 591
38	1	8	1 172.32	.08	38	70 337.0	8 00	672 159	30 807
39	1	9	1 203.17	.08	39	72 188.0	9 00	755 897	38 983
41 40	30.851	40	1 234.02	1851.09	40	74 039.1	10 00	839 537	48 118
41	2	1	1 264.87	.09	41	75 890.2	11 00	923 067	58 209
42	2	2	1 295.72	.10	42	77 741.3	12 00	1 006 475	69 256
43	2	3	1 326.57	.10	43	79 592.4	13 00	1 089 752	81 258
44	2	4	1 357.42	.11	44	81 443.5	14 00	1 172 886	94 212
41 45	30.852	45	1 388.27	1851.11	45	83 294.6	15 00	1 255 866	108 117
46	2	6	1 419.12	.12	46	85 145.7	16 00	1 338 681	122 971
47	2	7	1 449.98	.12	47	86 996.9	17 00	1 421 321	138 773
48	2	8	1 480.83	.13	48	88 848.0	18 00	1 503 775	155 520
49	2	9	1 511.68	.14	49	90 699.1	19 00	1 586 031	173 210
41 50	30.852	50	1 542.53	1851.14	50	92 550.3	20 00	1 668 079	191 841
51	2	1	1 573.38	.15	51	94 401.4	21 00	1 749 909	211 409
52	3	2	1 604.23	.15	52	96 252.5	22 00	1 831 509	231 914
53	3	3	1 635.08	.16	53	98 103.7	23 00	1 912 869	253 352
54	3	4	1 665.93	.16	54	99 954.9	24 00	1 993 978	275 719
41 55	30.853	55	1 696.78	1851.17	55	101 806.0	25 00	2 074 826	299 014
56	3	6	1 727.63	.17	56	103 657.2	26 00	2 155 402	323 233
57	3	7	1 758.48	.18	57	105 508.4	27 00	2 235 695	348 374
58	3	8	1 789.33	.18	58	107 359.6	28 00	2 315 695	374 432
59	3	9	1 820.18	.19	59	109 210.7	29 00	2 395 392	401 404
41 60	30.853	60	1 851.03	1851.20	60	111 061.9	30 00	2 474 774	429 287

Latitude 42° to 43°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
42 00	23.015	46.03	69.04	92.06	115.07	138.09	161.10	184.12	207.13	1380.9	2761.8	4142.7	5523.5	6904.4
01	.009	.02	.03	.04	.04	.05	.06	.07	.08	0.5	1.1	1.6	2.1	2.6
02	.003	6.01	9.01	2.01	5.01	8.02	1.02	4.02	7.02	0.2	60.4	40.5	20.6	900.8
03	2.997	5.99	8.99	1.99	4.98	7.98	0.98	3.97	6.97	79.8	59.6	39.4	19.2	899.0
04	.991	.98	.97	.96	.95	.94	.93	.93	.91	9.4	8.9	8.3	7.8	7.2
42 05	22.985	45.97	68.95	91.94	114.92	137.91	160.89	183.88	206.86	1379.1	2758.2	4137.2	5516.3	6895.4
06	.979	.96	.94	.92	.89	.87	.85	.83	.81	8.7	7.5	6.2	4.9	3.6
07	.973	.95	.92	.89	.86	.84	.81	.78	.75	8.4	6.7	5.1	3.4	1.8
08	.967	.93	.90	.87	.83	.80	.76	.73	.70	8.0	6.0	4.0	2.0	90.0
09	.961	.92	.88	.84	.80	.76	.72	.68	.64	7.6	5.2	2.9	10.5	88.2
42 10	22.955	45.91	68.86	91.82	114.77	137.73	160.68	183.64	206.59	1377.3	2754.5	4131.8	5509.1	6886.4
11	.949	.90	.85	.79	.74	.69	.64	.59	.54	6.9	3.8	30.7	7.6	4.6
12	.942	.88	.83	.77	.71	.65	.60	.54	.48	6.5	3.1	29.6	6.2	2.7
13	.936	.87	.81	.75	.68	.62	.55	.49	.43	6.2	2.3	8.6	4.7	80.9
14	.930	.86	.79	.72	.65	.58	.51	.44	.37	5.8	1.6	7.5	3.3	79.1
42 15	22.924	45.85	68.77	91.70	114.62	137.55	160.47	183.40	206.32	1375.5	2750.9	4126.4	5501.9	6877.3
16	.918	.84	.75	.67	.59	.51	.43	.35	.27	5.1	50.2	5.3	500.4	5.5
17	.912	.82	.74	.65	.56	.47	.39	.30	.21	4.7	49.5	4.2	499.0	3.7
18	.906	.81	.72	.62	.53	.44	.34	.25	.16	4.4	8.7	3.1	7.5	1.9
19	.900	.80	.70	.60	.50	.40	.30	.20	.10	4.0	8.0	2.0	6.1	70.1
42 20	22.894	45.79	68.68	91.58	114.47	137.37	160.26	183.15	206.05	1373.7	2747.3	4121.0	5494.6	6868.3
21	.888	.78	.66	.55	.44	.33	.22	.11	6.00	3.3	6.6	19.9	3.2	6.4
22	.882	.76	.65	.53	.41	.29	.18	.06	5.94	2.9	5.9	8.8	1.7	4.6
23	.876	.75	.63	.50	.38	.26	.13	3.01	.89	2.6	5.1	7.7	90.2	2.8
24	.870	.74	.61	.48	.35	.22	.09	2.96	.83	2.2	4.4	6.6	88.8	61.0
42 25	22.864	45.73	68.59	91.46	114.32	137.18	160.05	182.91	205.78	1371.8	2743.7	4115.5	5487.3	6859.2
26	.858	.72	.57	.43	.29	.15	60.01	.86	.72	1.5	3.0	4.4	5.9	7.4
27	.852	.70	.56	.41	.26	.11	59.97	.81	.67	1.1	2.2	3.3	4.4	5.6
28	.846	.69	.54	.38	.23	.07	.92	.77	.61	0.7	1.5	2.2	3.0	3.7
29	.840	.68	.52	.36	.20	.04	.88	.72	.56	0.4	0.7	1.2	1.5	1.9
42 30	22.834	45.67	68.50	91.33	114.17	137.00	159.84	182.67	205.50	1370.0	2740.0	4110.1	5480.1	6850.1
31	.828	.66	.48	.31	.14	6.97	.80	.62	.45	69.7	39.3	09.0	78.6	48.3
32	.822	.64	.46	.29	.11	.93	.75	.57	.39	9.3	8.6	7.9	7.2	6.5
33	.815	.63	.45	.26	.08	.89	.71	.52	.34	8.9	7.8	6.8	5.7	4.6
34	.809	.62	.43	.24	.05	.86	.67	.48	.28	8.6	7.1	5.7	4.3	2.8
42 35	22.803	45.61	68.41	91.21	114.02	136.82	159.62	182.43	205.23	1368.2	2736.4	4104.6	5472.8	6841.0
36	.797	.59	.39	.19	3.99	.78	.58	.38	.17	7.8	5.7	3.5	71.3	39.2
37	.791	.58	.37	.17	.96	.75	.54	.33	.12	7.5	5.0	2.4	69.9	7.4
38	.785	.57	.36	.14	.93	.71	.50	.28	.07	7.1	4.2	1.3	8.4	5.5
39	.779	.56	.34	.12	.90	.67	.45	.23	5.01	6.7	3.5	100.2	7.0	3.7
42 40	22.773	45.55	68.32	91.09	113.87	136.64	159.41	182.18	204.96	1366.4	2732.8	4099.1	5465.5	6831.9
41	.767	.53	.30	.07	.84	.60	.37	.14	.90	6.0	2.0	8.0	4.0	30.1
42	.761	.52	.28	.04	.81	.56	.32	.09	.85	5.6	1.3	6.9	2.6	28.2
43	.755	.51	.26	1.02	.77	.53	.28	2.04	.79	5.3	30.6	5.8	61.1	6.4
44	.749	.50	.25	0.99	.75	.49	.24	1.99	.74	4.9	29.8	4.7	59.7	4.6
42 45	22.742	45.48	68.23	90.97	113.71	136.45	159.19	181.94	204.68	1364.5	2729.1	4093.6	5458.2	6822.7
46	.736	.47	.21	.95	.68	.42	.15	.89	.63	4.2	8.4	2.6	6.7	20.9
47	.730	.46	.19	.92	.65	.38	.11	.84	.57	3.8	7.6	1.5	5.3	19.1
48	.724	.45	.17	.90	.62	.35	.07	.79	.52	3.5	6.9	90.4	3.8	7.3
49	.718	.44	.15	.87	.59	.31	9.02	.74	.46	3.1	6.1	89.3	2.3	5.4
42 50	22.712	45.42	68.14	90.85	113.56	136.27	158.98	181.70	204.41	1362.7	2725.4	4088.2	5450.9	6813.6
51	.706	.41	.12	.82	.53	.24	.94	.65	.36	2.4	4.7	7.1	49.4	11.8
52	.700	.40	.10	.80	.50	.20	.90	.60	.30	2.0	4.0	6.0	7.9	09.9
53	.694	.39	.08	.77	.47	.16	.86	.55	.24	1.6	3.2	4.9	6.5	8.1
54	.688	.38	.06	.75	.44	.13	.81	.50	.19	1.3	2.5	3.8	5.0	6.3
42 55	22.681	45.36	68.04	90.73	113.40	136.09	158.77	181.45	204.14	1360.9	2721.8	4082.7	5443.5	6804.4
56	.675	.35	.03	.70	.38	.05	.73	.40	.08	0.5	1.1	1.6	2.1	2.6
57	.669	.34	8.01	.68	.35	6.02	.69	.35	4.02	60.2	20.3	80.5	40.6	800.8
58	.663	.33	7.99	.65	.31	5.98	.64	.30	3.96	59.8	19.6	79.4	39.1	798.9
59	.657	.31	.97	.63	.28	.94	.60	.26	.91	9.4	8.8	8.3	7.7	7.1
42 60	22.651	45.30	67.95	90.60	113.25	135.91	158.56	181.21	203.86	1359.1	2718.1	4077.2	5436.2	6795.3

Lat.	Latitude 42° to 43°—Meridional arcs.						Latitude 42°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 42° 30'		Value of 1'	Continuous sums of minutes from latitude 42° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
42 00	30.853			1851.20			0 1	1 380.9	0.1
1	3	1	30.86	.20	1	1 851.2	2	2 761.8	0.5
2	3	2	61.71	.21	2	3 702.4	3	4 142.7	1.2
3	4	3	92.57	.21	3	5 553.6	4	5 523.5	2.2
4	4	4	123.42	.22	4	7 404.8	5	6 904.4	3.4
42 05	30.854	5	154.28	1851.22	5	9 256.0	6	8 285.3	4.8
5	4	5	185.14	.23	6	11 107.3	7	9 666.2	6.6
6	4	6	215.99	.23	7	12 958.5	8	11 047.1	8.6
7	4	7	246.85	.24	8	14 809.7	9	12 428.0	10.9
8	4	8	277.70	.24	9	16 661.0			
9	4	9							
42 10	30.854	10	308.56	1851.25	10	18 512.2	0 10	13 808.8	13.4
11	4	1	339.42	.26	1	20 363.5	15	20 713.2	30.2
12	4	2	370.27	.26	2	22 214.7	20	27 617.6	53.8
13	4	3	401.13	.27	3	24 066.0	25	34 522.0	84.0
14	5	4	431.98	.27	4	25 917.3	30	41 426.3	120.9
42 15	30.855	15	462.84	1851.28	15	27 768.5	0 35	48 330.6	164.6
16	5	5	493.70	.28	5	29 619.8	40	55 234.8	215.0
17	5	6	524.55	.29	6	31 471.1	45	62 139.0	272.1
18	5	7	555.41	.29	7	33 322.4	50	69 043.1	336.0
19	5	8	586.26	.30	8	35 173.7	55	75 947.2	406.5
		9			9				
42 20	30.855	20	617.12	1851.30	20	37 025.0	1 00	82 851.2	483.8
21	5	1	647.98	.31	1	38 876.3	05	89 755.1	567.8
22	5	2	678.83	.32	2	40 727.6	10	96 658.9	658.5
23	5	3	709.69	.32	3	42 578.9	15	103 562.6	755.9
24	5	4	740.54	.33	4	44 430.3	20	110 466.3	860.1
42 25	30.856	25	771.40	1851.33	25	46 281.6	1 25	117 369.8	971.0
26	6	5	802.26	.34	5	48 132.9	30	124 273.2	1 088.5
27	6	6	833.11	.34	6	49 984.3	35	131 176.5	1 212.8
28	6	7	863.97	.35	7	51 835.6	40	138 079.7	1 343.8
29	6	8	894.82	.35	8	53 686.9	45	144 982.7	1 481.6
		9			9				
42 30	30.856	30	925.68	1851.36	30	55 538.3	1 50	151 885.6	1 626.1
31	6	1	956.54	.37	1	57 389.7	55	158 788.4	1 777.2
32	6	2	987.39	.37	2	59 241.0	2 00	165 691	1 935
33	6	3	1 018.25	.38	3	61 092.4	3 00	172 594	2 100
34	6	4	1 049.10	.38	4	62 943.8	4 00	179 497	2 273
42 35	30.856	35	1 079.96	1851.39	35	64 795.2	5 00	186 399	2 455
36	7	5	1 110.82	.39	5	66 646.6	6 00	193 301	2 647
37	7	6	1 141.67	.40	6	68 498.0	7 00	200 203	2 849
38	7	7	1 172.53	.40	7	70 349.4	8 00	207 105	3 061
39	7	8	1 203.38	.41	8	72 200.8	9 00	214 007	3 283
		9			9				
42 40	30.857	40	1 234.24	1851.41	40	74 052.2	10 00	220 909	3 515
41	7	1	1 265.10	.42	1	75 903.6	11 00	227 811	3 767
42	7	2	1 295.95	.43	2	77 755.0	12 00	234 713	4 039
43	7	3	1 326.81	.43	3	79 606.4	13 00	241 615	4 331
44	7	4	1 357.66	.44	4	81 457.9	14 00	248 517	4 643
42 45	30.857	45	1 388.52	1851.44	45	83 309.3	15 00	255 419	4 975
46	7	5	1 419.38	.45	5	85 160.8	16 00	262 321	5 327
47	8	6	1 450.23	.45	6	87 012.2	17 00	269 223	5 709
48	8	7	1 481.09	.46	7	88 863.7	18 00	276 125	6 121
49	8	8	1 511.94	.46	8	90 715.1	19 00	283 027	6 553
		9			9				
42 50	30.858	50	1 542.80	1851.47	50	92 566.6	20 00	289 929	7 005
51	8	1	1 573.66	.47	1	94 418.1	21 00	296 831	7 487
52	8	2	1 604.51	.48	2	96 269.5	22 00	303 733	7 999
53	8	3	1 635.37	.49	3	98 121.0	23 00	310 635	8 541
54	8	4	1 666.22	.49	4	99 972.5	24 00	317 537	9 113
42 55	30.858	55	1 697.08	1851.50	55	101 824.0	25 00	324 439	9 715
56	8	5	1 727.94	.50	5	103 675.5	26 00	331 341	10 347
57	8	6	1 758.79	.51	6	105 527.0	27 00	338 243	11 009
58	9	7	1 789.65	.51	7	107 378.5	28 00	345 145	11 701
59	9	8	1 820.50	.52	8	109 230.0	29 00	352 047	12 423
42 60	30.859	60	1 851.36	1851.52	60	111 081.6	30 00	358 949	13 175

Latitude 43° to 44°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
43 00	22.651	45.30	67.95	90.60	113.25	135.91	158.56	181.21	203.86	1359.1	2718.1	4077.2	5436.2	6795.3
1	.045	.29	.93	.58	.22	.87	.52	.16	.81	8.7	7.4	6.1	4.7	3.4
2	.639	.28	.92	.55	.19	.83	.47	.11	.75	8.3	6.6	5.0	3.3	91.6
3	.632	.26	.90	.53	.16	.79	.43	.06	.69	7.9	5.9	3.8	1.8	89.7
4	.626	.25	.88	.50	.13	.76	.39	1.01	.64	7.6	5.1	2.7	30.3	7.9
43 05	22.620	45.24	67.86	90.48	113.10	135.72	158.34	180.96	203.58	1357.2	2714.4	4071.6	5428.9	6786.1
6	.614	.23	.84	.46	.07	.68	.30	.91	.53	6.8	3.7	70.5	7.4	4.2
7	.608	.22	.82	.43	.04	.65	.26	.86	.47	6.5	3.0	69.4	5.9	2.4
8	.602	.20	.81	.41	3.01	.61	.22	.81	.42	6.1	2.2	8.3	4.4	80.6
9	.596	.19	.79	.38	2.98	.57	.17	.77	.36	5.7	1.5	7.2	3.0	78.7
43 10	22.590	45.18	67.77	90.36	112.95	135.54	158.13	180.72	203.31	1355.4	2710.8	4066.1	5421.5	6776.9
11	.583	.17	.75	.34	.92	.50	.09	.67	.25	5.0	10.1	5.0	20.0	5.0
12	.577	.15	.73	.31	.89	.46	.04	.62	.19	4.6	09.3	3.9	18.5	3.2
13	.571	.14	.71	.29	.86	.43	8.00	.57	.14	4.3	8.6	2.8	7.1	71.3
14	.565	.13	.69	.26	.83	.39	7.96	.52	.09	3.9	7.8	1.7	5.6	69.5
43 15	22.559	45.12	67.68	90.24	112.79	135.35	157.91	180.47	203.03	1353.5	2707.1	4060.6	5414.1	6767.6
16	.553	.11	.66	.21	.76	.32	.87	.42	2.97	3.2	6.3	59.5	2.6	5.8
17	.547	.09	.64	.19	.73	.28	.83	.37	.92	2.8	5.6	8.4	11.2	4.0
18	.540	.08	.62	.16	.70	.24	.79	.32	.86	2.4	4.9	7.3	09.7	2.1
19	.534	.07	.60	.14	.67	.21	.74	.27	.81	2.1	4.1	6.2	8.2	60.3
43 20	22.528	45.06	67.58	90.11	112.64	135.17	157.70	180.22	202.75	1351.7	2703.4	4055.1	5406.7	6758.4
21	.522	.04	.57	.09	.61	.13	.65	.18	.70	1.3	2.7	4.0	5.3	6.6
22	.516	.03	.55	.06	.58	.09	.61	.13	.64	0.9	1.9	2.8	3.8	4.7
23	.510	.02	.53	.04	.55	.06	.57	.08	.59	0.6	1.2	1.7	2.3	2.9
24	.503	.01	.51	90.01	.52	5.02	.52	80.03	.53	50.2	700.4	50.6	400.8	51.0
43 25	22.497	44.99	67.49	89.99	112.49	134.98	157.48	179.98	202.48	1349.8	2699.7	4049.5	5399.3	6749.2
26	.491	.98	.47	.96	.45	.95	.44	.93	.42	9.5	8.9	8.4	7.8	7.3
27	.485	.97	.45	.94	.42	.91	.39	.88	.37	9.1	8.2	7.3	6.4	5.5
28	.479	.96	.44	.92	.39	.87	.35	.83	.31	8.7	7.5	6.2	4.9	3.6
29	.473	.95	.42	.89	.36	.84	.31	.78	.25	8.4	6.7	5.1	3.4	41.8
43 30	22.466	44.93	67.40	89.87	112.33	134.80	157.26	179.73	202.20	1348.0	2696.0	4043.9	5391.9	6739.9
31	.460	.92	.38	.84	.30	.76	.22	.68	.14	7.6	5.2	2.8	90.4	8.1
32	.454	.91	.36	.82	.27	.72	.18	.63	.09	7.2	4.5	1.7	89.0	6.2
33	.448	.90	.34	.79	.24	.69	.13	.58	2.03	6.9	3.8	40.6	7.5	4.3
34	.442	.88	.32	.77	.21	.65	.09	.53	1.98	6.5	3.0	39.5	6.0	2.5
43 35	22.435	44.87	67.31	89.74	112.18	134.61	157.05	179.48	201.92	1346.1	2692.3	4038.4	5384.5	6730.6
36	.429	.86	.29	.72	.14	.50	7.01	.43	.86	5.8	1.5	7.3	3.0	28.8
37	.423	.85	.27	.69	.11	.54	6.96	.38	.81	5.4	0.8	6.1	1.5	6.9
38	.417	.83	.25	.67	.08	.50	.92	.34	.75	5.0	90.0	5.0	80.0	5.1
39	.411	.82	.23	.64	.05	.46	.87	.29	.70	4.6	89.3	3.9	78.6	3.2
43 40	22.404	44.81	67.21	89.62	112.02	134.43	156.83	179.24	201.64	1344.3	2688.5	4032.8	5377.1	6721.3
41	.398	.80	.19	.59	1.99	.39	.79	.19	.58	3.9	7.8	1.7	5.6	19.5
42	.392	.78	.18	.57	.96	.35	.74	.14	.53	3.5	7.0	30.6	4.1	7.6
43	.386	.77	.16	.54	.93	.32	.70	.09	.47	3.2	6.3	29.5	2.6	5.8
44	.380	.76	.14	.52	.90	.28	.66	9.04	.42	2.8	5.5	8.3	71.1	3.9
43 45	22.373	44.75	67.12	89.49	111.87	134.24	156.61	178.99	201.36	1342.4	2684.8	4027.2	5369.6	6712.0
46	.367	.73	.10	.47	.83	.20	.57	.94	.30	2.0	4.1	6.1	8.1	10.2
47	.361	.72	.08	.44	.80	.17	.53	.89	.25	1.7	3.3	5.0	6.6	08.3
48	.355	.71	.06	.42	.77	.13	.49	.84	.19	1.3	2.6	3.9	5.2	6.4
49	.349	.70	.05	.39	.74	.09	.44	.79	.14	0.9	1.8	2.7	3.7	4.6
43 50	22.342	44.68	67.03	89.37	111.71	134.05	156.40	178.74	201.08	1340.5	2681.1	4021.6	5362.2	6702.7
51	.336	.67	7.01	.35	.68	4.02	.36	.69	1.03	40.2	80.3	20.5	60.7	700.9
52	.330	.66	6.99	.32	.65	3.98	.31	.64	0.97	39.8	79.6	19.4	59.2	6699.0
53	.324	.65	.97	.29	.62	.94	.27	.59	.91	9.4	8.9	8.3	7.7	7.1
54	.318	.64	.95	.27	.59	.91	.22	.54	.86	9.1	8.1	7.2	6.2	5.3
43 55	22.311	44.62	66.93	89.25	111.56	133.87	156.18	178.49	200.80	1338.7	2677.4	4016.0	5354.7	6693.4
56	.305	.61	.92	.22	.52	.83	.14	.44	.74	8.3	6.6	4.9	3.2	91.5
57	.299	.60	.90	.20	.49	.79	.09	.39	.69	7.9	5.9	3.8	1.7	89.6
58	.293	.59	.88	.17	.46	.76	.05	.34	.63	7.6	5.1	2.7	50.2	7.8
59	.286	.57	.86	.15	.43	.72	6.00	.29	.58	7.2	4.4	1.5	48.7	5.9
43 60	22.280	44.56	66.84	89.12	111.40	133.68	155.96	178.24	200.52	1336.8	2673.6	4010.4	5347.2	6684.0

Lat.	Latitude 43° to 44°—Meridional arcs.						Latitude 43°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 43° 30'		Value of 1'	Continuous sums of minutes from latitude 43° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
43 00	30.859			1851.52			0 1	1 359.1	0.1
1	9	1	30.86	.53	1	1 851.5	0 2	2 718.1	0.5
2	9	2	61.72	.53	2	3 703.1	0 3	4 077.2	1.2
3	9	3	92.58	.54	3	5 554.6	0 4	5 436.2	2.2
4	9	4	123.45	.55	4	7 406.1	0 5	6 795.3	3.4
43 05	30.859	5	154.31	1851.55	5	9 257.7	0 6	8 154.3	4.9
6	9	6	185.17	.56	6	11 109.2	0 7	9 513.4	6.6
7	9	7	216.03	.56	7	12 960.8	0 8	10 872.4	8.6
8	59	8	246.89	.57	8	14 812.4	0 9	12 231.5	10.9
9	60	9	277.75	.57	9	16 663.9			
43 10	30.860	10	308.61	1851.58	10	18 515.5	0 10	13 590.5	13.5
11	0	1	339.48	.58	1	20 367.1	0 15	20 385.8	30.3
12	0	2	370.34	.59	2	22 218.7	0 20	27 181.0	53.9
13	0	3	401.20	.59	3	24 070.3	0 25	33 976.2	84.3
14	0	4	432.06	.60	4	25 921.9	0 30	40 771.4	121.3
43 15	30.860	15	462.92	1851.61	15	27 773.5	0 35	47 566.5	165.1
16	0	6	493.78	.61	6	29 625.1	0 40	54 361.6	215.7
17	0	7	524.64	.62	7	31 476.7	0 45	61 156.7	273.0
18	0	8	555.51	.62	8	33 328.3	0 50	67 951.6	337.0
19	0	9	586.37	.63	9	35 179.9	0 55	74 746.5	407.8
43 20	30.861	20	617.23	1851.63	20	37 031.6	1 00	81 541.3	485.3
21	1	1	648.09	.64	1	38 883.2	1 05	88 336.1	569.6
22	1	2	678.95	.64	2	40 734.8	1 10	95 130.7	660.5
23	1	3	709.81	.65	3	42 586.5	1 15	101 925.3	758.3
24	1	4	740.68	.65	4	44 438.1	1 20	108 719.8	862.8
43 25	30.861	25	771.54	1851.66	25	46 289.8	1 25	115 514.2	974.0
26	1	6	802.40	.67	6	48 141.4	1 30	122 308.4	1 091.9
27	1	7	833.26	.67	7	49 993.1	1 35	129 102.5	1 216.6
28	1	8	864.12	.68	8	51 844.8	1 40	135 896.5	1 348.0
29	1	9	894.98	.68	9	53 696.5	1 45	142 690.4	1 486.2
43 30	30.861	30	925.84	1851.69	30	55 548.2	1 50	149 484.1	1 631.1
31	2	1	956.71	.69	1	57 399.9	1 55	156 277.7	1 782.8
32	2	2	987.57	.70	2	59 251.6	2 00	163 071	1 941
33	2	3	1 018.43	.70	3	61 103.3	2 05	169 865.1	2 100.5
34	2	4	1 049.29	.71	4	62 955.0	2 10	176 659.2	2 260.0
43 35	30.862	35	1 080.15	1851.72	35	64 806.7	2 15	183 453.3	2 420.5
36	2	5	1 111.01	.72	5	66 658.4	2 20	190 247.4	2 581.0
37	2	6	1 141.87	.73	6	68 510.1	2 25	197 041.5	2 742.5
38	2	7	1 172.74	.73	7	70 361.9	2 30	203 835.6	2 904.0
39	2	8	1 203.60	.74	8	72 213.6	2 35	210 629.7	3 065.5
43 40	30.862	40	1 234.46	1851.74	40	74 065.3	2 40	217 423.8	3 227.0
41	2	9	1 265.32	.75	9	75 917.1	2 45	224 217.9	3 388.5
42	3	1	1 296.18	.75	1	77 768.8	2 50	231 012.0	3 550.0
43	3	2	1 327.04	.76	2	79 620.5	2 55	237 806.1	3 711.5
44	3	3	1 357.90	.76	3	81 472.3	3 00	244 600.2	3 873.0
43 45	30.863	45	1 388.77	1851.77	45	83 324.1	3 05	251 394.3	4 034.5
46	3	4	1 419.63	.77	4	85 175.8	3 10	258 188.4	4 196.0
47	3	5	1 450.49	.78	5	87 027.6	3 15	264 982.5	4 357.5
48	3	6	1 481.35	.79	6	88 879.4	3 20	271 776.6	4 519.0
49	3	7	1 512.21	.79	7	90 731.2	3 25	278 570.7	4 680.5
43 50	30.863	50	1 543.07	1851.80	50	92 583.0	3 30	285 364.8	4 842.0
51	3	8	1 573.93	.80	8	94 434.8	3 35	292 158.9	5 003.5
52	3	9	1 604.80	.81	9	96 286.6	3 40	298 953.0	5 165.0
53	4	1	1 635.66	.81	1	98 138.4	3 45	305 747.1	5 326.5
54	4	2	1 666.52	.82	2	99 990.3	3 50	312 541.2	5 488.0
43 55	30.864	55	1 697.38	1851.82	55	101 842.1	3 55	319 335.3	5 649.5
56	4	3	1 728.24	.83	3	103 693.9	4 00	326 129.4	5 811.0
57	4	4	1 759.10	.84	4	105 545.7	4 05	332 923.5	5 972.5
58	4	5	1 789.96	.84	5	107 397.6	4 10	339 717.6	6 134.0
59	4	6	1 820.83	.85	6	109 249.4	4 15	346 511.7	6 295.5
43 60	30.864	60	1 851.69	1851.85	60	111 101.3	4 20	353 305.8	6 457.0

Latitude 44° to 45°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
44 00	22.280	44.56	66.84	89.12	111.40	133.68	155.96	178.24	200.52	1336.8	2673.6	4010.4	5347.2	6684.0
1	.274	.55	.82	.10	.37	.64	.92	.19	.46	6.4	2.9	09.3	5.7	2.2
2	.268	.54	.80	.07	.34	.61	.87	.14	.41	6.1	2.1	8.2	4.2	80.3
3	.261	.52	.78	.05	.31	.57	.83	.09	.35	5.7	1.4	7.0	2.7	78.4
4	.255	.51	.76	.02	.28	.53	.78	8.04	.30	5.3	70.6	5.9	41.2	6.5
44 05	22.249	44.50	66.75	89.00	111.24	133.49	155.74	177.99	200.24	1334.9	2669.9	4004.8	5339.7	6674.7
6	.243	.49	.73	8.97	.21	.46	.70	.94	.18	4.6	9.1	3.7	8.2	2.8
7	.236	.47	.71	.95	.18	.42	.65	.89	.13	4.2	8.4	2.6	6.7	70.9
8	.230	.46	.69	.92	.15	.38	.61	.84	.07	3.8	7.6	1.4	5.2	69.0
9	.224	.45	.67	.90	.13	.34	.57	.79	200.02	3.4	6.9	4000.3	3.7	7.2
44 10	22.218	44.44	66.65	88.87	111.09	133.31	155.52	177.74	199.96	1333.1	2666.1	3999.2	5332.2	6665.3
11	.211	.42	.63	.85	.06	.27	.48	.69	.90	2.7	5.4	8.1	30.7	3.4
12	.205	.41	.61	.82	.03	.23	.43	.64	.85	2.3	4.6	6.9	29.2	61.5
13	.199	.40	.60	.80	1.00	.19	.39	.59	.79	1.9	3.9	5.8	7.7	59.7
14	.193	.39	.58	.77	0.97	.16	.35	.54	.74	1.6	3.1	4.7	6.2	7.8
44 15	22.186	44.37	66.56	88.75	110.93	133.12	155.30	177.49	199.68	1331.2	2662.4	3993.5	5324.7	6655.9
16	.180	.36	.54	.72	.90	.08	.26	.44	.62	0.8	1.6	2.4	3.2	4.0
17	.174	.35	.52	.70	.87	.04	.22	.39	.57	0.4	0.9	1.3	1.7	2.1
18	.168	.34	.50	.67	.84	3.01	.18	.34	.51	30.1	60.1	90.2	20.2	50.3
19	.161	.32	.48	.65	.81	2.97	.13	.29	.45	29.7	59.4	89.0	18.7	48.4
44 20	22.155	44.31	66.47	88.62	110.78	132.93	155.09	177.24	199.40	1329.3	2658.6	3987.9	5317.2	6646.5
21	.149	.30	.45	.59	.74	.89	.04	.19	.34	8.9	7.8	6.8	5.7	4.6
22	.142	.28	.43	.57	.71	.85	5.00	.14	.28	8.5	7.1	5.6	4.2	2.7
23	.136	.27	.41	.54	.68	.82	4.96	.09	.23	8.2	6.3	4.5	2.7	40.8
24	.130	.26	.39	.52	.65	.78	.91	7.04	.17	7.8	5.6	3.4	11.2	39.0
44 25	22.124	44.25	66.37	88.49	110.62	132.74	154.87	176.99	199.11	1327.4	2654.8	3982.2	5309.7	6637.1
26	.117	.23	.35	.47	.59	.70	.82	.94	.06	7.0	4.1	1.1	8.2	5.2
27	.111	.22	.33	.44	.55	.67	.77	.89	9.00	6.7	3.3	80.0	6.6	3.3
28	.105	.21	.31	.42	.52	.63	.74	.84	8.94	6.3	2.6	78.9	5.1	31.4
29	.098	.20	.30	.39	.49	.59	.69	.79	.89	5.9	1.8	7.7	3.6	29.5
44 30	22.092	44.18	66.28	88.37	110.46	132.55	154.65	176.74	198.83	1325.5	2651.1	3976.6	5302.1	6627.7
31	.086	.17	.26	.34	.42	.52	.61	.69	.77	5.2	50.3	5.5	300.6	5.8
32	.080	.16	.24	.32	.40	.48	.56	.64	.72	4.8	49.6	4.3	299.1	3.9
33	.073	.15	.22	.29	.37	.44	.52	.59	.66	4.4	8.8	3.2	7.6	2.0
34	.067	.13	.20	.27	.34	.40	.47	.54	.60	4.0	8.1	2.0	6.1	20.1
44 35	22.061	44.12	66.18	88.24	110.30	132.36	154.43	176.49	198.55	1323.6	2647.3	3970.9	5294.6	6618.2
36	.054	.11	.16	.22	.27	.33	.38	.43	.49	3.3	6.5	69.8	3.0	6.3
37	.048	.10	.14	.19	.24	.29	.34	.38	.43	2.9	5.8	8.6	1.5	4.4
38	.042	.08	.13	.17	.21	.25	.29	.33	.37	2.5	5.0	7.5	90.0	2.5
39	.035	.07	.11	.14	.18	.21	.25	.28	.32	2.1	4.3	6.4	88.5	10.6
44 40	22.029	44.06	66.09	88.12	110.15	132.17	154.20	176.23	198.26	1321.7	2643.5	3965.2	5287.0	6608.7
41	.023	.04	.07	.09	.12	.14	.16	.18	.20	1.4	2.7	4.1	5.5	6.8
42	.016	.03	.05	.07	.09	.10	.11	.13	.15	1.0	2.0	3.0	4.0	4.9
43	.010	.02	.03	.04	.05	.06	.07	.08	.09	0.6	1.2	1.8	2.4	3.1
44	.004	.01	6.01	8.02	10.02	2.02	4.02	6.03	8.03	20.2	40.5	60.7	80.9	601.2
44 45	21.998	44.00	65.99	87.99	109.99	131.99	153.98	175.98	197.98	1319.9	2639.7	3959.6	5279.4	6599.3
46	.991	3.98	.97	.96	.96	.95	.94	.93	.92	9.5	8.9	8.4	7.9	7.4
47	.985	.97	.96	.94	.93	.91	.89	.88	.86	9.1	8.2	7.3	6.4	5.5
48	.979	.96	.94	.91	.89	.87	.85	.83	.80	8.7	7.4	6.1	4.9	3.6
49	.972	.95	.92	.89	.86	.83	.80	.78	.75	8.3	6.7	5.0	3.3	91.7
44 50	21.966	43.93	65.90	87.86	109.83	131.80	153.76	175.73	197.69	1318.0	2635.9	3953.9	5271.8	6589.8
51	.960	.92	.88	.84	.80	.76	.72	.68	.63	7.6	5.1	2.7	70.3	7.9
52	.953	.91	.86	.81	.77	.72	.67	.63	.58	7.2	4.4	1.6	68.8	6.0
53	.947	.89	.84	.79	.73	.68	.63	.58	.52	6.8	3.6	50.4	7.3	4.1
54	.941	.88	.82	.76	.70	.64	.58	.52	.46	6.4	2.9	49.3	5.7	2.2
44 55	21.934	43.87	65.80	87.74	109.67	131.61	153.54	175.47	197.41	1316.1	2632.1	3948.2	5264.2	6580.3
56	.928	.86	.78	.71	.64	.57	.50	.42	.35	5.7	1.3	7.0	2.7	78.4
57	.922	.84	.77	.69	.61	.53	.45	.37	.29	5.3	30.6	5.9	61.2	6.5
58	.915	.83	.75	.66	.57	.49	.41	.32	.23	4.9	29.8	4.7	59.6	4.6
59	.909	.82	.73	.64	.54	.45	.36	.27	.18	4.5	9.1	3.6	8.1	2.7
44 60	21.903	43.81	65.71	87.61	109.51	131.42	153.32	175.22	197.12	1314.2	2628.3	3942.5	5256.6	6570.8

Lat.	Latitude 44° to 45°—Meridional arcs.						Latitude 44°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 44° 30'		Value of 1'	Continuous sums of minutes from latitude 44° 00'		Longitude.	X	Y
° ' "	Meters.	''	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
44 00	30.864			1851.85					
1	4	1	30.87	.86	1	1 851.9	0 1	1 336.8	0.1
2	4	2	61.73	.86	2	3 703.7	2	2 673.6	0.5
3	4	3	92.60	.87	3	5 555.6	3	4 010.4	1.2
4	5	4	123.47	.87	4	7 407.4	4	5 347.2	2.2
44 05	30.865	5	154.33	1851.88	5	9 259.3	0 5	6 684.0	3.4
6	5	6	185.20	.89	6	11 111.2	6	8 020.8	4.9
7	5	7	216.07	.89	7	12 963.1	7	9 357.7	6.6
8	5	8	246.94	.90	8	14 815.0	8	10 694.5	8.6
9	5	9	277.80	.90	9	16 666.9	9	12 031.3	10.9
44 10	30.865	10	308.67	1851.91	10	18 518.8	0 10	13 368.1	13.5
11	5	1	339.54	.91	1	20 370.7	15	20 052.1	30.4
12	5	2	370.40	.92	2	22 222.6	20	26 736.1	54.0
13	5	3	401.27	.92	3	24 074.5	25	33 420.1	84.4
14	5	4	432.14	.93	4	25 926.5	30	40 104.0	121.5
44 15	30.866	15	463.00	1851.93	15	27 778.4	0 35	46 787.9	165.4
16	6	6	493.87	.94	6	29 630.3	40	53 471.8	216.1
17	6	7	524.74	.95	7	31 482.3	45	60 155.6	273.5
18	6	8	555.61	.95	8	33 334.2	50	66 839.3	337.7
19	6	9	586.47	.96	9	35 186.2	55	73 523.0	408.6
44 20	30.866	20	617.34	1851.96	20	37 038.1	1 00	80 206.5	486.2
21	6	1	648.21	.97	1	38 890.1	05	86 890.0	570.6
22	6	2	679.07	.97	2	40 742.0	10	93 573.5	661.8
23	6	3	709.94	.98	3	42 594.0	15	100 256.8	759.7
24	6	4	740.81	.98	4	44 446.0	20	106 940.0	864.4
44 25	30.866	25	771.67	1851.99	25	46 298.0	1 25	113 623.1	975.8
26	7	6	802.54	1.99	6	48 150.0	30	120 306.1	1 094.0
27	7	7	833.41	2.00	7	50 002.0	35	126 989.0	1 218.9
28	7	8	864.27	.01	8	51 854.0	40	133 671.8	1 350.6
29	7	9	895.14	.01	9	53 706.0	45	140 354.4	1 489.0
44 30	30.867	30	926.01	1852.02	30	55 558.0	1 50	147 036.8	1 634.2
31	7	1	956.88	.02	1	57 410.0	55	153 719.1	1 786.1
32	7	2	987.74	.03	2	59 262.0	2 00	160 401	1 945
33	7	3	1 018.61	.03	3	61 114.1	3 00	240 572	4 375
34	7	4	1 049.48	.04	4	62 966.1	4 00	320 708	7 778
44 35	30.867	35	1 080.34	1852.04	35	64 818.1	5 00	400 797	12 152
36	7	6	1 111.21	.05	6	66 670.2	6 00	480 827	17 496
37	8	7	1 142.08	.06	7	68 522.2	7 00	560 786	23 811
38	8	8	1 172.94	.06	8	70 374.3	8 00	640 662	31 094
39	8	9	1 203.81	.07	9	72 226.4	9 00	720 445	39 345
44 40	30.868	40	1 234.68	1852.07	40	74 078.4	10 00	800 122	48 563
41	8	1	1 265.54	.08	1	75 930.5	11 00	879 681	58 746
42	8	2	1 296.41	.08	2	77 782.6	12 00	959 110	69 893
43	8	3	1 327.28	.09	3	79 634.7	13 00	1 038 399	82 002
44	8	4	1 358.15	.09	4	81 486.8	14 00	1 117 535	95 072
44 45	30.868	45	1 389.01	1852.10	45	83 338.9	15 00	1 196 507	109 100
46	8	5	1 419.88	.10	6	85 191.0	16 00	1 275 303	124 084
47	9	7	1 450.75	.11	7	87 043.1	17 00	1 353 911	140 023
48	9	8	1 481.61	.12	8	88 895.2	18 00	1 432 320	156 913
49	9	9	1 512.48	.12	9	90 747.3	19 00	1 510 519	174 753
44 50	30.869	50	1 543.35	1852.13	50	92 599.5	20 00	1 588 496	193 540
51	9	1	1 574.21	.13	1	94 451.6	21 00	1 666 240	213 270
52	9	2	1 605.08	.14	2	96 303.7	22 00	1 743 738	233 942
53	9	3	1 635.95	.14	3	98 155.9	23 00	1 820 980	255 552
54	9	4	1 666.82	.15	4	100 008.0	24 00	1 897 955	278 096
44 55	30.869	55	1 697.68	1852.15	55	101 860.2	25 00	1 974 650	301 572
56	9	6	1 728.55	.16	6	103 712.3	26 00	2 051 055	325 977
57	69	7	1 759.42	.16	7	105 564.5	27 00	2 127 159	351 306
58	70	8	1 790.28	.17	8	107 416.7	28 00	2 202 950	377 555
59	71	9	1 821.15	.18	9	109 268.8	29 00	2 278 417	404 722
44 60	30.870	60	1 852.02	1852.18	60	111 121.0	30 00	2 353 550	432 801

Latitude 45° to 46°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
45 00	21.903	43.81	65.71	87.61	109.51	131.42	153.32	175.22	197.12	1314.2	2628.3	3942.5	5256.6	6570.8
1	.896	.79	.69	.58	.48	.38	.28	.17	.06	3.8	7.5	1.3	5.1	68.8
2	.890	.78	.67	.56	.45	.34	.23	.12	7.01	3.4	6.8	40.2	3.6	6.9
3	.883	.77	.65	.53	.42	.30	.19	.07	6.95	3.0	6.0	39.0	2.0	5.0
4	.877	.75	.63	.51	.39	.26	.14	5.02	.89	2.6	5.3	7.9	50.5	3.1
45 05	21.871	43.74	65.61	87.48	109.35	131.22	153.10	174.97	196.83	1312.2	2624.5	3936.7	5249.0	6561.2
6	.864	.73	.59	.46	.32	.19	.05	.91	.78	1.9	3.7	5.6	7.4	59.3
7	.858	.72	.57	.43	.29	.15	3.01	.86	.72	1.5	3.0	4.4	5.9	7.4
8	.852	.70	.56	.41	.26	.11	2.96	.81	.66	1.1	2.2	3.3	4.4	5.5
9	.845	.69	.54	.38	.23	.07	.92	.76	.61	0.7	1.5	2.2	2.9	3.6
45 10	21.839	43.68	65.52	87.36	109.20	131.03	152.87	174.71	196.55	1310.3	2620.7	3931.0	5241.3	6551.7
11	.833	.67	.50	.33	.17	1.00	.83	.66	.49	10.0	19.9	29.9	39.8	49.8
12	.826	.65	.48	.30	.13	0.96	.78	.61	.44	9.6	9.1	8.7	8.3	7.9
13	.820	.64	.46	.28	.10	.92	.74	.56	.38	9.2	8.4	7.6	6.8	5.9
14	.813	.63	.44	.25	.07	.88	.69	.51	.32	8.8	7.6	6.4	5.2	4.0
45 15	21.807	43.61	65.42	87.23	109.04	130.84	152.65	174.46	196.26	1308.4	2616.8	3925.3	5233.7	6542.1
16	.801	.60	.40	.20	9.01	.80	.61	.41	.21	8.0	6.1	4.1	2.2	40.2
17	.794	.59	.38	.18	8.98	.77	.56	.35	.15	7.7	5.3	3.0	30.6	38.3
18	.788	.58	.36	.15	.94	.73	.52	.30	.09	7.3	4.5	1.8	29.1	6.4
19	.782	.56	.35	.13	.91	.69	.47	.25	6.04	6.9	3.8	20.7	7.6	4.5
45 20	21.775	43.55	65.33	87.10	108.88	130.65	152.43	174.20	195.98	1306.5	2613.0	3919.5	5226.0	6532.5
21	.769	.54	.31	.07	.85	.61	.39	.15	.92	6.1	2.2	8.4	4.5	30.6
22	.762	.52	.29	.05	.82	.57	.34	.10	.86	5.7	1.5	7.2	3.0	28.7
23	.756	.51	.27	.02	.78	.54	.30	.05	.81	5.4	0.7	6.1	21.4	6.8
24	.750	.50	.25	7.00	.75	.50	.25	4.00	.75	5.0	10.0	4.9	19.9	4.9
45 25	21.743	43.49	65.23	86.97	108.72	130.46	152.21	173.95	195.69	1304.6	2609.2	3913.8	5218.4	6523.0
26	.737	.47	.21	.95	.69	.42	.16	.89	.63	4.2	8.4	2.6	6.8	21.0
27	.730	.46	.19	.92	.66	.38	.12	.84	.57	3.8	7.6	1.5	5.3	19.1
28	.724	.45	.17	.90	.62	.34	.07	.79	.52	3.4	6.9	10.3	3.8	7.2
29	.718	.44	.15	.87	.59	.31	2.03	.74	.46	3.1	6.1	09.2	2.2	5.3
45 30	21.711	43.42	65.13	86.84	108.56	130.27	151.98	173.69	195.40	1302.7	2605.3	3908.0	5210.7	6513.4
31	.705	.41	.11	.82	.53	.23	.94	.64	.34	2.3	4.5	6.9	09.1	11.4
32	.698	.40	.09	.79	.50	.19	.89	.59	.28	1.9	3.8	5.7	7.6	09.5
33	.692	.38	.08	.77	.46	.15	.85	.54	.23	1.5	3.0	4.6	6.1	7.6
34	.686	.37	.06	.74	.43	.11	.80	.48	.17	1.1	2.3	3.4	4.5	5.7
45 35	21.679	43.36	65.04	86.72	108.40	130.07	151.76	173.43	195.11	1300.7	2601.5	3902.2	5203.0	6503.7
36	.673	.35	.02	.69	.37	.04	.71	.38	5.05	0.4	600.7	901.1	201.4	501.8
37	.666	.33	5.00	.66	.34	30.00	.67	.33	4.99	300.0	599.9	899.9	199.9	499.9
38	.660	.32	4.98	.64	.30	29.96	.62	.28	.94	299.6	9.2	8.8	8.4	8.0
39	.653	.31	.96	.61	.27	.92	.58	.23	.88	9.2	8.4	7.6	6.8	6.0
45 40	21.647	43.29	64.94	86.59	108.24	129.88	151.53	173.18	194.82	1298.8	2597.6	3896.5	5195.3	6494.1
41	.641	.28	.92	.56	.20	.84	.48	.12	.76	8.4	6.8	5.3	3.7	2.2
42	.634	.27	.90	.54	.17	.81	.44	.07	.71	8.1	6.1	4.2	2.2	90.3
43	.628	.26	.88	.51	.14	.77	.40	3.02	.65	7.7	5.3	3.0	90.7	88.3
44	.621	.24	.86	.49	.11	.73	.35	2.97	.59	7.3	4.6	1.8	89.1	6.4
45 45	21.615	43.23	64.85	86.46	108.07	129.69	151.31	172.92	194.54	1296.9	2593.8	3890.7	5187.6	6484.5
46	.608	.22	.83	.43	.04	.65	.26	.87	.48	6.5	3.0	89.5	6.0	2.5
47	.602	.20	.81	.41	8.01	.61	.22	.82	.42	6.1	2.2	8.4	4.5	80.6
48	.596	.19	.79	.38	7.98	.57	.17	.76	.36	5.7	1.5	7.2	2.9	78.7
49	.589	.18	.77	.36	.94	.53	.13	.71	.30	5.3	90.7	6.0	81.4	6.7
45 50	21.583	43.17	64.75	86.33	107.91	129.50	151.08	172.66	194.25	1295.0	2589.9	3884.9	5179.9	6474.8
51	.576	.15	.73	.30	.88	.46	1.04	.61	.19	4.6	9.1	3.7	8.3	2.9
52	.570	.14	.71	.28	.85	.42	0.99	.56	.13	4.2	8.4	2.6	6.8	70.9
53	.563	.13	.69	.25	.81	.38	.95	.51	.07	3.8	7.6	1.4	5.2	69.0
54	.557	.11	.67	.23	.78	.34	.90	.46	4.01	3.4	6.9	80.2	3.7	7.1
45 55	21.550	43.10	64.65	86.20	107.75	129.30	150.86	172.40	193.96	1293.0	2586.1	3879.1	5172.1	6465.1
56	.544	.09	.63	.18	.72	.26	.81	.35	.90	2.6	5.3	7.9	70.6	3.2
57	.538	.08	.61	.15	.69	.23	.77	.30	.84	2.3	4.5	6.8	69.0	61.3
58	.531	.06	.59	.13	.65	.19	.72	.25	.78	1.9	3.8	5.6	7.5	59.3
59	.525	.05	.57	.10	.62	.15	.68	.20	.72	1.5	3.0	4.4	5.9	7.4
45 60	21.518	43.04	64.55	86.07	107.59	129.11	150.63	172.15	193.66	1291.1	2582.2	3873.3	5164.4	6455.5

Lat.	Latitude 45° to 46°—Meridional arcs.						Latitude 45°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 45° 30'		Value of 1'	Continuous sums of minutes from latitude 45° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
45 00	30.870			1852.18			0 1	1 314.1	0.1
1	0	1	30.87	.19	1	1 852.2	0 2	2 628.3	0.5
2	0	2	61.74	.19	2	3 704.4	0 3	3 942.5	1.2
3	0	3	92.62	.20	3	5 556.6	0 4	5 256.6	2.2
4	0	4	123.49	.20	4	7 408.8	0 5	6 570.8	3.4
45 05	30.870	5	154.36	1852.21	5	9 261.0	0 6	7 884.9	4.9
6	0	6	185.23	.21	6	11 113.2	0 7	9 199.1	6.6
7	0	7	216.11	.22	7	12 965.4	0 8	10 513.2	8.6
8	0	8	246.98	.23	8	14 817.6	0 9	11 827.4	10.9
9	1	9	277.85	.23	9	16 669.9			
45 10	30.871	10	308.72	1852.24	10	18 522.1	0 10	13 141.5	13.5
11	1	1	339.60	.24	1	20 374.3	0 15	19 712.3	30.4
12	1	2	370.47	.25	2	22 226.6	0 20	26 283.0	54.1
13	1	3	401.34	.25	3	24 078.8	0 25	32 853.7	84.5
14	1	4	432.21	.26	4	25 931.1	0 30	39 424.3	121.6
45 15	30.871	15	463.09	1852.26	15	27 783.3	0 35	45 994.9	165.6
16	1	5	493.96	.27	5	29 635.6	0 40	52 565.5	216.2
17	1	6	524.83	.27	6	31 487.9	0 45	59 136.0	273.7
18	1	7	555.70	.28	7	33 340.1	0 50	65 706.5	337.9
19	1	8	586.58	.29	8	35 192.4	0 55	72 276.8	408.8
45 20	30.872	20	617.45	1852.29	20	37 044.7	1 00	78 847.1	486.5
21	2	1	648.32	.30	1	38 897.0	1 05	85 417.4	571.0
22	2	2	679.19	.30	2	40 749.3	1 10	91 987.5	662.2
23	2	3	710.07	.31	3	42 601.6	1 15	98 557.5	760.2
24	2	4	740.94	.31	4	44 453.9	1 20	105 127.4	865.0
45 25	30.872	25	771.81	1852.32	25	46 306.2	1 25	111 697.3	976.5
26	2	5	802.68	.32	5	48 158.6	1 30	118 267.0	1 094.7
27	2	6	833.56	.33	6	50 010.9	1 35	124 836.6	1 219.7
28	2	7	864.43	.34	7	51 863.2	1 40	131 406.0	1 351.5
29	2	8	895.30	.34	8	53 715.6	1 45	137 975.3	1 490.0
45 30	30.872	30	926.17	1852.35	30	55 567.9	1 50	144 544.4	1 635.3
31	3	1	957.05	.35	1	57 420.3	1 55	151 113.5	1 787.3
32	3	2	987.92	.36	2	59 272.6	2 00	157 682	1 946
33	3	3	1 018.79	.36	3	61 125.0	2 05	164 251.1	2 108.1
34	3	4	1 049.66	.37	4	62 977.3	2 10	170 820.2	2 274.8
45 35	30.873	35	1 080.54	1852.37	35	64 829.7	2 15	177 389.3	2 446.5
36	3	5	1 111.41	.38	5	66 682.1	2 20	183 958.4	2 623.2
37	3	6	1 142.28	.38	6	68 534.5	2 25	190 527.5	2 804.9
38	3	7	1 173.15	.39	7	70 386.9	2 30	197 096.6	2 991.6
39	3	8	1 204.02	.40	8	72 239.3	2 35	203 665.7	3 183.3
45 40	30.873	40	1 234.90	1852.40	40	74 091.7	2 40	210 234.8	3 380.0
41	3	1	1 265.77	.41	1	75 944.1	2 45	216 803.9	3 581.7
42	4	2	1 296.64	.41	2	77 796.5	2 50	223 373.0	3 788.4
43	4	3	1 327.51	.42	3	79 648.9	2 55	229 942.1	3 999.1
44	4	4	1 358.39	.42	4	81 501.3	2 60	236 511.2	4 214.8
45 45	30.874	45	1 389.26	1852.43	45	83 353.7	2 65	243 080.3	4 435.5
46	4	5	1 420.13	.43	5	85 206.1	2 70	249 649.4	4 661.2
47	4	6	1 451.00	.44	6	87 058.6	2 75	256 218.5	4 891.9
48	4	7	1 481.88	.44	7	88 911.0	2 80	262 787.6	5 127.6
49	4	8	1 512.75	.45	8	90 763.5	2 85	269 356.7	5 368.3
45 50	30.874	50	1 543.62	1852.46	50	92 615.9	2 90	275 925.8	5 614.0
51	4	1	1 574.49	.46	1	94 468.4	2 95	282 494.9	5 864.7
52	4	2	1 605.37	.47	2	96 320.9	3 00	289 064.0	6 120.4
53	5	3	1 636.24	.47	3	98 173.3	3 05	295 633.1	6 381.1
54	5	4	1 667.11	.48	4	100 025.8	3 10	302 202.2	6 646.8
45 55	30.875	55	1 697.98	1852.48	55	101 878.3	3 15	308 771.3	6 917.5
56	5	5	1 728.86	.49	5	103 730.8	3 20	315 340.4	7 193.2
57	5	6	1 759.73	.49	6	105 583.3	3 25	321 909.5	7 473.9
58	5	7	1 790.60	.50	7	107 435.8	3 30	328 478.6	7 759.6
59	5	8	1 821.47	.51	8	109 288.3	3 35	335 047.7	8 050.3
45 60	30.875	60	1 852.35	1852.51	60	111 140.8	3 40	341 616.8	8 346.0

Latitude 46° to 47°—Arcs of the parallel in meters.														
Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
46 00	21.518	43.04	64.55	86.07	107.59	129.11	150.63	172.15	193.66	1291.1	2582.2	3873.3	5164.4	6455.5
1	.512	.02	.53	.05	.56	.07	.58	.09	.60	0.7	1.4	2.1	2.8	3.5
2	.505	.01	.52	.04	.53	.03	.54	.04	.55	90.3	80.6	70.9	61.3	51.6
3	.499	3.00	.50	5.99	.49	8.99	.49	1.99	.49	89.9	79.9	69.8	59.7	49.6
4	.492	2.98	.48	.97	.46	.95	.45	.94	.43	9.5	9.1	8.6	8.2	7.7
46 05	21.486	42.97	64.46	85.94	107.43	128.92	150.40	171.89	193.37	1289.2	2578.3	3867.5	5156.6	6445.8
6	.479	.96	.44	.92	.40	.88	.35	.84	.31	8.8	7.5	6.3	5.1	3.8
7	.473	.95	.42	.89	.37	.84	.31	.78	.25	8.4	6.7	5.1	3.5	41.9
8	.466	.93	.40	.87	.33	.80	.26	.73	.20	8.0	6.0	4.0	1.9	39.9
9	.460	.92	.38	.84	.30	.76	.22	.68	.14	7.6	5.2	2.8	50.4	8.0
46 10	21.454	42.91	64.36	85.81	107.27	128.72	150.17	171.63	193.08	1287.2	2574.4	3861.6	5148.8	6436.1
11	.447	.89	.34	.79	.24	.68	.13	.58	3.02	6.8	3.6	60.5	7.3	4.1
12	.441	.88	.32	.76	.20	.64	.08	.52	2.96	6.4	2.8	59.3	5.7	2.2
13	.434	.87	.30	.74	.17	.60	50.04	.47	.91	6.0	2.1	8.1	4.2	30.2
14	.428	.86	.28	.71	.14	.57	49.99	.42	.85	5.7	1.3	7.0	2.6	28.3
46 15	21.421	42.84	64.26	85.68	107.10	128.53	149.95	171.37	192.79	1285.3	2570.5	3855.8	5141.1	6426.3
16	.415	.83	.24	.66	.07	.49	.90	.32	.73	4.9	69.7	4.6	39.5	4.4
17	.408	.82	.22	.63	.04	.45	.86	.26	.67	4.5	8.9	3.5	7.9	2.4
18	.402	.80	.21	.61	7.01	.41	.81	.21	.62	4.1	8.2	2.3	6.4	20.5
19	.395	.79	.19	.58	6.97	.37	.77	.16	.56	3.7	7.4	1.1	4.8	18.5
46 20	21.389	42.78	64.17	85.55	106.94	128.33	149.72	171.11	192.50	1283.3	2566.6	3850.0	5133.3	6416.6
21	.382	.76	.15	.53	.91	.29	.68	.06	.44	2.9	5.8	48.8	1.7	4.6
22	.376	.75	.13	.50	.88	.25	.63	1.00	.38	2.5	5.0	7.6	30.1	2.7
23	.369	.74	.11	.48	.84	.21	.59	0.95	.32	2.1	4.3	6.4	28.6	10.7
24	.363	.73	.09	.45	.81	.18	.54	.90	.26	1.8	3.5	5.3	7.0	08.8
46 25	21.356	42.71	64.07	85.42	106.78	128.14	149.50	170.85	192.21	1281.4	2562.7	3844.1	5125.5	6406.8
26	.350	.70	.05	.40	.75	.10	.45	.80	.15	1.0	1.9	2.9	3.9	4.9
27	.343	.69	.03	.37	.72	.06	.41	.74	.09	0.6	1.1	1.8	2.3	2.9
28	.337	.67	4.01	.35	.68	8.02	.36	.69	2.03	80.2	60.4	40.6	20.8	401.0
29	.330	.66	3.99	.32	.65	7.98	.32	.64	1.97	79.8	59.6	39.4	19.2	399.0
46 30	21.324	42.65	63.97	85.29	106.62	127.94	149.27	170.59	191.91	1279.4	2558.8	3838.2	5117.7	6397.1
31	.317	.63	.95	.27	.59	.90	.22	.54	.85	9.0	8.0	7.1	6.1	5.1
32	.311	.62	.93	.24	.55	.86	.18	.48	.79	8.6	7.2	5.9	4.5	3.2
33	.304	.61	.91	.22	.52	.82	.13	.43	.73	8.2	6.5	4.7	3.0	91.2
34	.297	.59	.89	.19	.48	.78	.08	.38	.67	7.8	5.7	3.5	11.4	89.2
46 35	21.291	42.58	63.87	85.16	106.45	127.75	149.04	170.33	191.62	1277.5	2554.9	3832.4	5109.8	6387.3
36	.284	.57	.85	.14	.42	.71	8.99	.28	.56	7.1	4.1	1.2	8.3	5.3
37	.278	.56	.83	.11	.39	.67	.95	.22	.50	6.7	3.3	30.0	6.7	3.4
38	.271	.54	.81	.09	.36	.63	.90	.17	.44	6.3	2.6	28.8	5.1	81.4
39	.265	.53	.79	.06	.32	.59	.86	.12	.38	5.9	1.8	7.7	3.6	79.5
46 40	21.258	42.52	63.77	85.03	106.29	127.55	148.81	170.07	191.32	1275.5	2551.0	3826.5	5102.0	6377.5
41	.252	.50	.75	5.01	.26	.51	.76	70.01	.26	5.1	50.2	5.3	100.4	5.5
42	.245	.49	.74	4.98	.22	.47	.72	69.96	.21	4.7	49.4	4.1	99.9	3.6
43	.239	.48	.72	.96	.19	.43	.67	.91	.15	4.3	8.7	3.0	7.3	71.6
44	.232	.46	.70	.93	.16	.39	.63	.86	.09	3.9	7.9	1.8	5.7	69.6
46 45	21.226	42.45	63.68	84.90	106.12	127.35	148.58	169.80	191.03	1273.5	2547.1	3820.6	5094.1	6367.7
46	.219	.44	.66	.88	.09	.31	.53	.75	0.97	3.1	6.3	19.4	2.6	5.7
47	.213	.43	.64	.85	.06	.28	.49	.70	.91	2.8	5.5	8.3	91.0	3.8
48	.206	.41	.62	.83	6.03	.24	.44	.65	.86	2.4	4.8	7.1	89.4	61.8
49	.199	.40	.60	.80	5.99	.20	.40	.60	.80	2.0	4.0	5.9	7.9	59.8
46 50	21.193	42.39	63.58	84.77	105.96	127.16	148.35	169.54	190.74	1271.6	2543.2	3814.7	5086.3	6357.9
51	.186	.37	.56	.75	.93	.12	.30	.49	.68	1.2	2.4	3.5	4.7	5.9
52	.180	.36	.54	.72	.90	.08	.26	.44	.62	0.8	1.6	2.4	3.1	3.9
53	.173	.35	.52	.69	.86	.04	.21	.39	.56	0.4	0.8	1.2	1.6	2.0
54	.167	.33	.50	.67	.83	7.00	.17	.33	.50	70.0	40.0	10.0	80.0	50.0
46 55	21.160	42.32	63.48	84.64	105.80	126.96	148.12	169.28	190.44	1269.6	2539.2	3808.8	5078.4	6348.0
56	.154	.31	.46	.61	.77	.92	.07	.23	.38	9.2	8.4	7.6	6.9	6.1
57	.147	.29	.44	.59	.74	.88	8.03	.18	.33	8.8	7.6	6.5	5.3	4.1
58	.140	.28	.42	.56	.70	.84	7.98	.12	.27	8.4	6.9	5.3	3.7	2.1
59	.134	.27	.40	.54	.67	.80	.94	.07	.21	8.0	6.1	4.1	2.1	40.2
46 60	21.127	42.25	63.38	84.51	105.64	126.76	147.89	169.02	190.15	1267.6	2535.3	3802.9	5070.6	6338.2

Lat.	Latitude 46° to 47°—Meridional arcs.						Latitude 46°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 46° 30'		Value of 1'	Continuous sums of minutes from latitude 46° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
46 00	30.875			1852.51			0 1	1 291.1	0.1
1	5	1	30.88	.52	1	1 852.5	0 2	2 582.2	0.5
2	5	2	61.76	.52	2	3 705.0	0 3	3 873.3	1.2
3	5	3	92.63	.53	3	5 557.6	0 4	5 164.4	2.2
4	6	4	123.51	.53	4	7 410.1	0 5	6 455.5	3.4
46 05	30.876	5	154.39	1852.54	5	9 262.6	0 6	7 746.6	4.9
6	6	6	185.27	.54	6	11 115.2	0 7	9 037.6	6.6
7	6	7	216.15	.55	7	12 967.7	0 8	10 328.7	8.6
8	6	8	247.02	.55	8	14 820.3	0 9	11 619.8	10.9
9	6	9	277.90	.56	9	16 672.8			
46 10	30.876	10	308.78	1852.57	10	18 525.4	0 10	12 910.9	13.5
11	6	1	339.66	.57	1	20 377.9	0 15	19 366.4	30.4
12	6	2	370.54	.58	2	22 230.5	0 20	25 821.8	54.0
13	6	3	401.41	.58	3	24 083.1	0 25	32 277.2	84.4
14	6	4	432.29	.59	4	25 935.7	0 30	38 732.6	121.6
46 15	30.877	15	463.17	1852.59	15	27 788.3	0 35	45 187.9	165.5
16	7	6	494.05	.60	6	29 640.9	0 40	51 643.1	216.1
17	7	7	524.92	.60	7	31 493.5	0 45	58 098.4	273.5
18	7	8	555.80	.61	8	33 346.1	0 50	64 553.5	337.7
19	7	9	586.68	.61	9	35 198.7	0 55	71 008.6	408.6
46 20	30.877	20	617.56	1852.62	20	37 051.3	1 00	77 463.6	486.3
21	7	1	648.44	.63	1	38 903.9	05	83 918.5	570.7
22	7	2	679.31	.63	2	40 756.6	10	90 373.3	661.9
23	7	3	710.19	.64	3	42 609.2	15	96 828.0	759.8
24	7	4	741.07	.64	4	44 461.8	20	103 282.7	864.5
46 25	30.877	25	771.95	1852.65	25	46 314.5	1 25	109 737.2	975.9
26	8	6	802.83	.65	6	48 167.1	30	116 191.6	1 094.1
27	8	7	833.70	.66	7	50 019.8	35	122 645.8	1 219.0
28	8	8	864.58	.66	8	51 872.4	40	129 099.9	1 350.7
29	8	9	895.46	.67	9	53 725.1	45	135 553.9	1 489.2
46 30	30.878	30	926.34	1852.68	30	55 577.8	1 50	142 007.8	1 634.4
31	8	1	957.22	.68	1	57 430.5	55	148 461.4	1 786.3
32	8	2	988.09	.69	2	59 283.1	2 00	154 915	1 945
33	8	3	1 018.97	.69	3	61 135.8	3 00	232 342	4 376
34	8	4	1 049.85	.70	4	62 988.5	4 00	309 732	7 779
46 35	30.878	35	1 080.73	1852.70	35	64 841.2	5 00	387 074	12 153
36	8	6	1 111.61	.71	6	66 693.9	6 00	464 354	17 498
37	9	7	1 142.48	.71	7	68 546.6	7 00	541 562	23 813
38	9	8	1 173.36	.72	8	70 399.4	8 00	618 684	31 096
39	9	9	1 204.24	.72	9	72 252.1	9 00	695 708	39 347
46 40	30.879	40	1 235.12	1852.73	40	74 104.8	10 00	772 623	48 565
41	9	1	1 265.99	.74	1	75 957.5	11 00	849 416	58 747
42	9	2	1 296.87	.74	2	77 810.3	12 00	926 075	69 893
43	9	3	1 327.75	.75	3	79 663.0	13 00	1 002 588	82 000
44	9	4	1 358.63	.75	4	81 515.8	14 00	1 078 943	95 067
46 45	30.879	45	1 389.51	1852.76	45	83 368.5	15 00	1 155 128	109 091
46	9	6	1 420.38	.76	6	85 221.3	16 00	1 231 131	124 071
47	79	7	1 451.26	.77	7	87 074.1	17 00	1 306 940	140 003
48	80	8	1 482.14	.77	8	88 926.8	18 00	1 382 543	156 887
49	0	9	1 513.02	.78	9	90 779.6	19 00	1 457 928	174 718
46 50	30.880	50	1 543.90	1852.78	50	92 632.4	20 00	1 533 083	193 494
51	0	1	1 574.77	.79	1	94 485.2	21 00	1 607 997	213 212
52	0	2	1 605.65	.80	2	96 338.0	22 00	1 682 657	233 869
53	0	3	1 636.53	.80	3	98 190.8	23 00	1 757 052	255 462
54	0	4	1 667.41	.81	4	100 043.6	24 00	1 831 170	277 987
46 55	30.880	55	1 698.29	1852.81	55	101 896.4	25 00	1 904 999	301 441
56	0	6	1 729.16	.82	6	103 749.2	26 00	1 978 528	325 820
57	0	7	1 760.04	.82	7	105 602.0	27 00	2 051 745	351 120
58	0	8	1 790.92	.83	8	107 454.8	28 00	2 124 639	377 337
59	1	9	1 821.80	.83	9	109 307.7	29 00	2 197 197	404 468
46 60	30.881	60	1 852.68	1852.84	60	111 160.5	30 00	2 269 410	432 507

Latitude 47° to 48°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
47 00	21.127	42.25	63.38	84.51	105.64	126.76	147.89	169.02	190.15	1267.6	2535.3	3802.9	5070.6	6338.2
1	.121	.24	.36	.48	.61	.72	.84	.97	.09	7.2	4.5	1.7	69.0	6.2
2	.114	.23	.34	.46	.57	.68	.80	.91	.03	6.8	3.7	800.5	7.4	4.2
3	.108	.22	.32	.43	.54	.65	.75	.86	.97	6.5	2.9	799.4	5.8	2.3
4	.101	.20	.30	.40	.51	.61	.71	.81	.91	6.1	2.1	8.2	4.2	30.3
47 05	21.094	42.19	63.28	84.38	105.47	126.57	147.66	168.76	189.85	1265.7	2531.3	3797.0	5062.7	6328.3
6	.088	.18	.26	.35	.44	.53	.61	.70	.79	5.3	30.5	5.8	61.1	6.4
7	.081	.16	.24	.32	.41	.49	.57	.65	.73	4.9	29.7	4.6	59.5	4.4
8	.075	.15	.22	.30	.38	.45	.52	.60	.67	4.5	9.0	3.4	7.9	2.4
9	.068	.14	.20	.27	.34	.41	.48	.54	.61	4.1	8.2	2.3	6.3	20.4
47 10	21.062	42.12	63.18	84.25	105.31	126.37	147.43	168.49	189.55	1263.7	2527.4	3791.1	5054.8	6318.5
11	.055	.11	.16	.22	.28	.33	.38	.44	.49	3.3	6.6	89.9	3.2	6.5
12	.048	.10	.14	.19	.24	.29	.34	.39	.43	2.9	5.8	8.7	1.6	4.5
13	.042	.08	.12	.17	.21	.25	.29	.33	.37	2.5	5.0	7.5	50.0	2.5
14	.035	.07	.10	.14	.18	.21	.25	.28	.31	2.1	4.2	6.3	48.4	10.5
47 15	21.029	42.06	63.09	84.11	105.15	126.17	147.20	168.23	189.26	1261.7	2523.4	3785.1	5046.8	6308.6
16	.022	.04	.07	.09	.11	.13	.15	.18	.20	1.3	2.6	3.9	5.3	6.6
17	.015	.03	.05	.06	.08	.09	.11	.12	.14	0.9	1.8	2.8	3.7	4.6
18	.009	.02	.03	.04	.05	.05	.06	.07	.08	0.5	1.1	1.6	2.1	2.6
19	.002	2.00	3.01	4.01	5.01	6.01	7.02	8.02	9.02	60.1	20.3	80.4	40.5	300.6
47 20	20.996	41.99	62.99	83.98	104.98	125.97	146.97	167.96	188.96	1259.7	2519.5	3779.2	5038.9	6298.7
21	.989	.98	.97	.96	.95	.93	.92	.91	.90	9.3	8.7	8.0	7.3	6.7
22	.982	.96	.95	.93	.91	.89	.88	.86	.84	8.9	7.9	6.8	5.8	4.7
23	.976	.95	.93	.90	.88	.85	.83	.81	.78	8.5	7.1	5.6	4.2	2.7
24	.969	.94	.91	.88	.85	.81	.79	.75	.72	8.1	6.3	4.4	2.6	90.7
47 25	20.962	41.92	62.89	83.85	104.81	125.77	146.74	167.70	188.66	1257.7	2515.5	3773.2	5031.0	6288.7
26	.956	.91	.87	.82	.78	.74	.69	.65	.60	7.4	4.7	2.1	29.4	6.8
27	.949	.90	.85	.80	.75	.70	.65	.59	.54	7.0	3.9	70.9	7.8	4.8
28	.943	.89	.83	.77	.72	.66	.60	.54	.48	6.6	3.1	69.7	6.2	2.8
29	.936	.87	.81	.74	.68	.62	.56	.49	.42	6.2	2.3	8.5	4.6	80.8
47 30	20.929	41.86	62.79	83.72	104.65	125.58	146.51	167.44	188.36	1255.8	2511.5	3767.3	5023.1	6278.8
31	.923	.85	.77	.69	.62	.54	.46	.38	.30	5.4	10.7	6.1	21.5	6.8
32	.916	.83	.75	.66	.58	.50	.42	.33	.24	5.0	09.9	4.9	19.9	4.8
33	.910	.82	.73	.64	.55	.46	.37	.28	.18	4.6	9.1	3.7	8.3	2.9
34	.903	.81	.71	.61	.52	.42	.32	.22	.12	4.2	8.3	2.5	6.7	70.9
47 35	20.896	41.79	62.69	83.58	104.48	125.38	146.28	167.17	188.07	1253.8	2507.5	3761.3	5015.1	6268.9
36	.890	.78	.67	.56	.45	.34	.23	.12	8.01	3.4	6.7	60.1	3.5	6.9
37	.883	.77	.65	.53	.42	.30	.18	.06	7.95	3.0	5.9	58.9	1.9	4.9
38	.876	.75	.63	.51	.39	.26	.13	7.01	.89	2.6	5.2	7.7	10.3	2.9
39	.870	.74	.61	.48	.35	.22	.09	6.96	.83	2.2	4.4	6.5	08.7	60.9
47 40	20.863	41.73	62.59	83.45	104.32	125.18	146.04	166.90	187.77	1251.8	2503.6	3755.4	5007.1	6258.9
41	.856	.71	.57	.43	.29	.14	5.99	.85	.71	1.4	2.8	4.2	5.5	6.9
42	.850	.70	.55	.40	.25	.10	.95	.80	.65	1.0	2.0	3.0	4.0	4.9
43	.843	.69	.53	.37	.22	.06	.90	.75	.59	0.6	1.2	1.8	2.4	2.9
44	.836	.67	.51	.35	.18	5.02	.86	.69	.53	50.2	500.4	50.6	5000.8	50.9
47 45	20.830	41.66	62.49	83.32	104.15	124.98	145.81	166.64	187.47	1249.8	2499.6	3749.4	4999.2	6248.9
46	.823	.65	.47	.29	.12	.94	.76	.59	.41	9.4	8.8	8.2	7.6	7.0
47	.817	.63	.45	.27	.08	.90	.72	.53	.35	9.0	8.0	7.0	6.0	5.0
48	.810	.62	.43	.24	.05	.86	.67	.48	.29	8.6	7.2	5.8	4.4	3.0
49	.803	.61	.41	.21	4.01	.82	.63	.43	.23	8.2	6.4	4.6	2.8	41.0
47 50	20.797	41.59	62.39	83.19	103.98	124.78	145.58	166.37	187.17	1247.8	2495.6	3743.4	4991.2	6239.0
51	.790	.58	.37	.16	.95	.74	.53	.32	.11	7.4	4.8	2.2	89.6	7.0
52	.783	.57	.35	.13	.91	.70	.49	.27	7.05	7.0	4.0	41.0	8.0	5.0
53	.777	.55	.33	.11	.88	.66	.44	.21	6.99	6.6	3.2	39.8	6.4	3.0
54	.770	.54	.31	.08	.85	.62	.39	.16	.93	6.2	2.4	8.6	4.8	31.0
47 55	20.763	41.53	62.29	83.05	103.81	124.58	145.35	166.11	186.87	1245.8	2491.6	3737.4	4983.2	6229.0
56	.757	.51	.27	.03	.78	.54	.30	.05	.81	5.4	0.8	6.2	1.6	7.0
57	.750	.50	.25	3.00	.75	.50	.25	6.00	.75	5.0	90.0	5.0	80.0	5.0
58	.743	.49	.23	2.97	.72	.46	.20	5.95	.69	4.6	89.2	3.8	78.4	3.0
59	.737	.47	.21	.95	.68	.42	.16	.89	.63	4.2	8.4	2.6	6.8	21.0
47 60	20.730	41.46	62.19	82.92	103.65	124.38	145.11	165.84	186.57	1243.8	2487.6	3731.4	4975.2	6219.0

Lat.	Latitude 47° to 48°—Meridional arcs.						Latitude 47°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 47° 30'		Value of 1'	Continuous sums of minutes from latitude 47° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
47 00	30.881			1852.84			0 1	1 267.6	0.1
1	1	1	30.88	.85	1	1 852.8	0 2	2 535.3	0.5
2	1	2	61.77	.85	2	3 705.7	0 3	3 802.9	1.2
3	1	3	92.65	.86	3	5 558.5	0 4	5 070.5	2.2
4	1	4	123.53	.86	4	7 411.4	0 5	6 338.2	3.4
47 05	30.881	5	154.42	1852.87	5	9 264.3	0 6	7 605.8	4.8
6	1	6	185.30	.87	6	11 117.1	0 7	8 873.5	6.6
7	1	7	216.18	.88	7	12 970.0	0 8	10 141.1	8.6
8	1	8	247.07	.88	8	14 822.9	0 9	11 408.7	10.9
9	1	9	277.95	.89	9	16 675.8			
47 10	30.882	10	308.83	1852.89	10	18 528.7	0 10	12 676.4	13.5
11	2	1	339.72	.90	1	20 381.6	0 15	19 014.6	30.3
12	2	2	370.60	.91	2	22 234.5	0 20	25 352.7	53.9
13	2	3	401.48	.91	3	24 087.4	0 25	31 690.8	84.3
14	2	4	432.37	.92	4	25 940.3	0 30	38 028.9	121.4
47 15	30.882	15	463.25	1852.92	15	27 793.2	0 35	44 366.9	165.2
16	2	6	494.13	.93	6	29 646.1	0 40	50 704.9	215.7
17	2	7	525.02	.93	7	31 499.1	0 45	57 042.9	273.0
18	2	8	555.90	.94	8	33 352.0	0 50	63 380.7	337.1
19	2	9	586.78	.94	9	35 204.9	0 55	69 718.5	407.9
47 20	30.882	20	617.67	1852.95	20	37 057.9	1 00	76 056.3	485.4
21	3	1	648.55	.95	1	38 910.8	1 05	82 393.9	569.7
22	3	2	679.43	.96	2	40 763.8	1 10	88 731.4	660.7
23	3	3	710.32	.97	3	42 616.8	1 15	95 068.9	758.4
24	3	4	741.20	.97	4	44 469.7	1 20	101 406.2	862.9
47 25	30.883	25	772.08	1852.98	25	46 322.7	1 25	107 743.4	974.2
26	3	5	802.97	.98	5	48 175.7	1 30	114 080.5	1 092.2
27	3	6	833.85	.99	6	50 028.7	1 35	120 417.5	1 216.9
28	3	7	864.74	2.99	7	51 881.7	1 40	126 754.3	1 348.3
29	3	8	895.62	3.00	8	53 734.7	1 45	133 091.0	1 486.5
47 30	30.883	30	926.50	1853.00	30	55 587.7	1 50	139 427.6	1 631.5
31	3	1	957.39	.01	1	57 440.7	1 55	145 764.0	1 783.2
32	4	2	988.27	.01	2	59 293.7	2 00	152 100	1 942
33	4	3	1 019.15	.02	3	61 146.7	2 05	158 436.9	2 106.9
34	4	4	1 050.04	.03	4	62 999.7	2 10	164 773.3	2 277.4
47 35	30.884	35	1 080.92	1853.03	35	64 852.7	2 15	171 109.7	2 453.9
36	4	5	1 111.80	.04	5	66 705.8	2 20	177 446.1	2 636.4
37	4	6	1 142.69	.04	6	68 558.8	2 25	183 782.5	2 824.9
38	4	7	1 173.57	.05	7	70 411.9	2 30	190 118.9	3 018.4
39	4	8	1 204.45	.05	8	72 264.9	2 35	196 454.3	3 217.9
47 40	30.884	40	1 235.34	1853.06	40	74 118.0	2 40	202 789.7	3 423.4
41	4	1	1 266.22	.06	1	75 971.0	2 45	209 125.1	3 634.9
42	4	2	1 297.10	.07	2	77 824.1	2 50	215 460.5	3 852.4
43	5	3	1 327.99	.08	3	79 677.2	2 55	221 795.9	4 075.9
44	5	4	1 358.87	.08	4	81 530.2	3 00	228 131.3	4 305.4
47 45	30.885	45	1 389.75	1853.09	45	83 383.3	3 05	234 466.7	4 540.9
46	5	5	1 420.64	.09	5	85 236.4	3 10	240 802.1	4 782.4
47	5	6	1 451.52	.10	6	87 089.5	3 15	247 137.5	5 029.9
48	5	7	1 482.40	.10	7	88 942.6	3 20	253 472.9	5 283.4
49	5	8	1 513.29	.11	8	90 795.7	3 25	259 808.3	5 542.9
47 50	30.885	50	1 544.17	1853.11	50	92 648.8	3 30	266 143.7	5 807.4
51	5	1	1 575.05	.12	1	94 501.9	3 35	272 479.1	6 077.9
52	5	2	1 605.94	.12	2	96 355.1	3 40	278 814.5	6 353.4
53	5	3	1 636.82	.13	3	98 208.2	3 45	285 149.9	6 634.9
54	6	4	1 667.70	.14	4	100 061.3	3 50	291 485.3	6 922.4
47 55	30.886	55	1 698.59	1853.14	55	101 914.5	3 55	297 820.7	7 215.9
56	6	5	1 729.47	.15	5	103 767.6	4 00	304 156.1	7 515.4
57	6	6	1 760.35	.15	6	105 620.8	4 05	310 491.5	7 820.9
58	6	7	1 791.24	.16	7	107 473.9	4 10	316 826.9	8 132.4
59	6	8	1 822.12	.16	8	109 327.1	4 15	323 162.3	8 449.9
47 60	30.886	60	1 853.00	1853.17	60	111 180.2	4 20	329 497.7	8 773.4

Latitude 48° to 49°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
48 00	20.730	41.46	62.19	82.92	103.65	124.38	145.11	165.84	186.57	1243.8	2487.6	3731.4	4975.2	6219.0
1	.723	.45	.17	.89	.62	.34	.06	.79	.51	3.4	6.8	30.2	3.6	7.0
2	.717	.43	.15	.87	.58	.30	5.02	.73	.45	3.0	6.0	29.0	2.0	5.0
3	.710	.42	.13	.84	.55	.26	4.97	.68	.39	2.6	5.2	7.8	70.4	3.0
4	.703	.41	.11	.81	.52	.22	.92	.63	.33	2.2	4.4	6.6	68.8	10.9
48 05	20.696	41.39	62.09	82.79	103.48	124.18	144.88	165.57	186.27	1241.8	2483.6	3725.4	4967.2	6208.9
5	.690	.38	.07	.76	.45	.14	.83	.52	.21	1.4	2.8	4.2	5.5	6.9
6	.683	.37	.05	.73	.42	.10	.78	.46	.15	1.0	2.0	3.0	3.9	4.9
7	.676	.35	.03	.71	.39	.06	.73	.41	.09	0.6	1.2	1.8	2.3	2.9
8	.670	.34	.01	.68	.35	.02	.69	.36	.03	40.2	80.4	20.6	60.7	200.9
48 10	20.663	41.33	61.99	82.65	103.32	123.98	144.64	165.30	185.97	1239.8	2479.6	3719.4	4959.1	6198.9
11	.656	.31	.97	.63	.29	.94	.59	.25	.91	9.4	8.8	8.1	7.5	6.9
12	.650	.30	.95	.60	.25	.90	.55	.20	.85	9.0	8.0	6.9	5.9	4.9
13	.643	.29	.93	.57	.22	.86	.50	.14	.79	8.6	7.1	5.7	4.3	2.9
14	.636	.27	.91	.54	.18	.82	.45	.09	.73	8.2	6.3	4.5	2.7	90.9
48 15	20.630	41.26	61.89	82.52	103.15	123.78	144.41	165.04	185.66	1237.8	2475.5	3713.3	4951.1	6188.9
15	.623	.25	.87	.49	.12	.74	.36	4.98	.60	7.4	4.7	2.1	49.5	6.8
16	.616	.23	.85	.46	.08	.70	.31	.93	.54	7.0	3.9	10.9	7.9	4.8
17	.609	.22	.83	.44	.05	.66	.26	.88	.48	6.6	3.1	09.7	6.3	2.8
18	.603	.21	.81	.41	3.01	.62	.22	.82	.42	6.2	2.3	8.5	4.7	80.8
48 20	20.596	41.19	61.79	82.38	102.98	123.58	144.17	164.77	185.36	1235.8	2471.5	3707.3	4943.0	6178.8
21	.589	.18	.77	.36	.95	.54	.12	.71	.30	5.4	70.7	6.1	41.4	6.8
22	.583	.17	.75	.33	.91	.50	.08	.66	.24	5.0	69.9	4.9	39.8	4.8
23	.576	.15	.73	.30	.88	.46	4.03	.61	.18	4.6	9.1	3.7	8.2	2.8
24	.569	.14	.71	.28	.85	.42	3.98	.55	.12	4.2	8.3	2.5	6.6	70.8
48 25	20.562	41.12	61.69	82.25	102.81	123.37	143.93	164.50	185.06	1233.7	2467.5	3701.2	4935.0	6168.7
25	.556	.11	.67	.22	.78	.33	.89	.45	5.00	3.3	6.7	700.0	3.4	6.7
26	.549	.10	.65	.20	.74	.29	.84	.39	4.94	2.9	5.9	698.8	1.8	4.7
27	.542	.08	.63	.17	.71	.25	.79	.34	.88	2.5	5.1	7.6	30.1	2.7
28	.536	.07	.61	.14	.67	.21	.75	.28	.82	2.1	4.3	6.4	28.5	60.7
48 30	20.529	41.06	61.59	82.12	102.64	123.17	143.70	164.23	184.76	1231.7	2463.5	3695.2	4926.9	6158.7
31	.522	.04	.57	.09	.61	.13	.65	.18	.70	1.3	2.7	4.0	5.3	6.6
32	.515	.03	.55	.06	.57	.09	.61	.12	.64	0.9	1.9	2.8	3.7	4.6
33	.509	.02	.53	.03	.54	.05	.56	.07	.64	0.5	1.0	1.5	2.1	2.6
34	.502	1.00	.51	2.01	.51	3.01	.51	4.01	.52	30.1	60.2	90.3	20.4	50.6
48 35	20.495	40.99	61.48	81.98	102.47	122.97	143.47	163.96	184.45	1229.7	2459.4	3689.1	4918.8	6148.5
35	.488	.98	.46	.95	.44	.93	.42	.91	.39	9.3	8.6	7.9	7.2	6.5
36	.482	.96	.44	.93	.41	.89	.37	.85	.33	8.9	7.8	6.7	5.6	4.5
37	.475	.95	.42	.90	.38	.85	.32	.80	.27	8.5	7.0	5.5	4.0	2.5
38	.468	.94	.40	.87	.34	.81	.28	.75	.21	8.1	6.2	4.3	2.4	40.5
48 40	20.461	40.92	61.38	81.85	102.31	122.77	143.23	163.69	184.15	1227.7	2455.4	3683.1	4910.7	6138.4
41	.455	.91	.36	.82	.28	.73	.18	.64	.09	7.3	4.6	1.8	09.1	6.4
42	.448	.90	.34	.79	.24	.69	.14	.58	4.03	6.9	3.8	80.6	7.5	4.4
43	.441	.88	.32	.76	.21	.65	.09	.53	3.97	6.5	2.9	79.4	5.9	2.4
44	.434	.87	.30	.74	.17	.61	.04	.48	.91	6.1	2.1	8.2	4.3	30.3
48 45	20.428	40.86	61.28	81.71	102.14	122.57	143.00	163.42	183.85	1225.7	2451.3	3677.0	4902.6	6128.3
45	.421	.84	.26	.68	.11	.53	2.95	.37	.79	5.3	50.5	5.8	901.0	6.3
46	.414	.83	.24	.66	.07	.48	.90	.31	.73	4.8	49.7	4.5	899.4	4.2
47	.407	.81	.22	.63	.04	.44	.85	.26	.67	4.4	8.9	3.3	7.8	2.2
48	.401	.80	.20	.60	2.00	.40	.81	.21	.61	4.0	8.1	2.1	6.2	20.2
48 50	20.394	40.79	61.18	81.58	101.97	122.36	142.76	163.15	183.55	1223.6	2447.3	3670.9	4894.5	6118.2
51	.387	.77	.16	.55	.94	.32	.71	.10	.49	3.2	6.5	69.7	2.9	6.1
52	.380	.76	.14	.52	.90	.28	.66	.04	.43	2.8	5.7	8.5	91.3	4.1
53	.374	.75	.12	.49	.87	.24	.62	2.99	.36	2.4	4.8	7.2	89.7	2.1
54	.367	.73	.10	.47	.83	.20	.57	.93	.30	2.0	4.0	6.0	8.0	10.0
48 55	20.360	40.72	61.08	81.44	101.80	122.16	142.52	162.88	183.24	1221.6	2443.2	3664.8	4886.4	6108.0
55	.353	.71	.06	.41	.77	.12	.47	.83	.18	1.2	2.4	3.6	4.8	6.0
56	.346	.69	.04	.39	.73	.08	.42	.77	.12	0.8	1.6	2.4	3.1	3.9
57	.340	.68	.02	.36	.70	.04	.38	.72	3.05	0.4	40.7	61.1	81.5	101.9
58	.333	.67	1.00	.33	.66	2.00	.33	.66	2.99	20.0	39.9	59.9	79.9	99.9
48 60	20.326	40.65	60.98	81.30	101.63	121.96	142.28	162.61	182.93	1219.6	2439.1	3658.7	4878.3	6097.8

Lat.	Latitude 48° to 49°—Meridional arcs.						Latitude 48°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 48° 30'		Value of 1'	Continuous sums of minutes from latitude 48° 00'		Longitude.	X	Y
		''	Meters.		'	Meters.			
• /	Meters.			Meters.			° /	Meters.	Meters.
48 00	30.886			1853.17			0 1	1 243.8	0.1
1	5	1	30.89	.17	1	1 853.2	2	2 487.6	0.5
2	6	2	61.78	.18	2	3 706.3	3	3 731.4	1.2
3	6	3	92.67	.18	3	5 559.5	4	4 975.2	2.1
4	6	4	123.56	.19	4	7 412.7	5	6 219.0	3.3
48 05	30.887	5	154.44	1853.20	5	9 265.9	6	7 462.8	4.8
6	7	6	185.33	.20	6	11 119.1	7	8 706.6	6.6
7	7	7	216.22	.21	7	12 972.3	8	9 950.4	8.6
8	7	8	247.11	.21	8	14 825.5	9	11 194.2	10.9
9	7	9	278.00	.22	9	16 678.7	10	12 437.9	13.4
48 10	30.887	10	308.89	1853.22	10	18 531.9	15	18 656.9	30.2
11	7	1	339.78	.23	1	20 385.2	20	24 875.8	53.8
12	7	2	370.67	.23	2	22 238.4	25	31 094.7	84.0
13	7	3	401.56	.24	3	24 091.6	30	37 313.6	121.0
14	7	4	432.44	.24	4	25 944.9	35	43 532.4	164.7
48 15	30.887	15	463.33	1853.25	15	27 798.1	40	49 751.2	215.1
16	8	5	494.22	.26	5	29 651.4	45	55 969.9	272.2
17	8	6	525.11	.26	6	31 504.6	50	62 188.5	336.1
18	8	7	556.00	.27	7	33 357.9	55	68 407.1	406.7
19	8	8	586.89	.27	8	35 211.2	00	74 625.6	484.0
48 20	30.888	20	617.78	1853.28	20	37 064.4	05	80 844.0	568.0
21	8	1	648.67	.28	1	38 917.7	10	87 062.3	658.7
22	8	2	679.56	.29	2	40 771.0	15	93 280.5	756.2
23	8	3	710.44	.29	3	42 624.3	20	99 498.6	860.4
24	8	4	741.33	.30	4	44 477.6	25	105 716.6	971.3
48 25	30.888	25	772.22	1853.30	25	46 330.9	30	111 934.5	1 088.9
26	8	5	803.11	.31	5	48 184.2	35	118 152.2	1 213.2
27	9	6	834.00	.32	6	50 037.5	40	124 369.8	1 344.3
28	9	7	864.89	.32	7	51 890.8	45	130 587.3	1 482.1
29	9	8	895.78	.33	8	53 744.2	50	136 804.6	1 626.6
48 30	30.889	30	926.67	1853.33	30	55 597.5	55	143 021.7	1 777.8
31	9	1	957.55	.34	1	57 450.8	00	149 239	1 936
32	9	2	988.44	.34	2	59 304.2	05	223 827	4 355
33	9	3	1 019.33	.35	3	61 157.5	10	298 377	7 742
34	9	4	1 050.22	.35	4	63 010.9	15	372 877	12 095
48 35	30.889	35	1 081.11	1853.36	35	64 864.2	20	447 314	17 414
36	9	5	1 112.00	.36	5	66 717.6	25	521 677	23 698
37	9	6	1 142.89	.37	6	68 570.9	30	595 951	30 946
38	9	7	1 173.78	.38	7	70 424.3	35	670 125	39 157
39	9	8	1 204.67	.38	8	72 277.7	40	744 186	48 329
48 40	30.890	40	1 235.55	1853.39	40	74 131.1	45	818 123	58 461
41	0	1	1 266.44	.39	1	75 984.5	50	891 921	69 552
42	0	2	1 297.33	.40	2	77 837.9	55	965 570	81 598
43	0	3	1 328.22	.40	3	79 691.3	00	1 039 056	94 598
44	0	4	1 359.11	.41	4	81 544.7	05	1 112 367	108 551
48 45	30.890	45	1 390.00	1853.41	45	83 398.1	10	1 185 491	123 453
46	0	5	1 420.89	.42	5	85 251.5	15	1 258 416	139 302
47	0	6	1 451.78	.42	6	87 104.9	20	1 331 129	156 096
48	0	7	1 482.67	.43	7	88 958.3	25	1 403 618	173 832
49	1	8	1 513.55	.44	8	90 811.8	30	1 475 871	192 506
48 50	30.891	50	1 544.44	1853.44	50	92 665.2	35	1 547 876	212 116
51	1	1	1 575.33	.45	1	94 518.7	40	1 619 620	232 658
52	1	2	1 606.22	.45	2	96 372.1	45	1 691 091	254 128
53	1	3	1 637.11	.46	3	98 225.6	50	1 762 279	276 524
54	1	4	1 668.00	.46	4	100 079.0	55	1 833 170	299 842
48 55	30.891	55	1 698.89	1853.47	55	101 932.5	00	1 903 752	324 077
56	1	5	1 729.78	.47	5	103 786.0	05	1 974 015	349 225
57	1	6	1 760.67	.48	6	105 639.4	10	2 043 945	375 283
58	1	7	1 791.55	.48	7	107 492.9	15	2 113 531	402 245
59	1	8	1 822.44	.49	8	109 346.4	20	2 182 762	430 107
48 60	30.892	60	1 853.33	1853.50	60	111 199.9	25		

Latitude 49° to 50°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
49 00	20.326	40.65	60.98	81.30	101.63	121.96	142.28	162.61	182.93	1219.6	2439.1	3658.7	4878.3	6097.8
1	.319	.64	.96	.28	.60	.92	.23	.55	.87	9.2	8.3	7.5	6.6	5.8
2	.313	.63	.94	.25	.56	.88	.19	.50	.81	8.8	7.5	6.3	5.0	3.8
3	.306	.61	.92	.22	.53	.83	.14	.45	.75	8.3	6.7	5.0	3.4	91.7
4	.299	.60	.90	.20	.49	.79	.09	.39	.69	7.9	5.9	3.8	1.8	89.7
49 05	20.292	40.58	60.88	81.17	101.46	121.75	142.04	162.34	182.63	1217.5	2435.1	3652.6	4870.1	6087.7
6	.285	.57	.86	.14	.43	.71	2.00	.28	.57	7.1	4.3	1.4	68.5	5.6
7	.279	.56	.84	.12	.39	.67	1.95	.23	.51	6.7	3.5	50.2	6.9	3.6
8	.272	.54	.81	.09	.36	.63	.90	.17	.44	6.3	2.6	48.9	5.2	81.5
9	.265	.53	.79	.06	.32	.59	.86	.12	.38	5.9	1.8	7.7	3.6	79.5
49 10	20.258	40.52	60.77	81.03	101.29	121.55	141.81	162.07	182.32	1215.5	2431.0	3646.5	4862.0	6077.5
11	.251	.50	.75	1.01	.26	.51	.76	2.01	.26	5.1	30.2	5.3	60.3	5.4
12	.245	.49	.73	0.98	.22	.47	.71	1.96	.20	4.7	29.4	4.0	58.7	3.4
13	.238	.48	.71	.95	.19	.43	.67	.90	.14	4.3	8.5	2.8	7.1	71.3
14	.231	.46	.69	.92	.15	.39	.62	.85	.08	3.9	7.7	1.6	5.4	69.3
49 15	20.224	40.45	60.67	80.90	101.12	121.35	141.57	161.79	182.02	1213.5	2426.9	3640.4	4853.8	6067.3
16	.217	.43	.65	.87	.09	.30	.52	.74	1.95	3.0	6.1	39.1	2.2	5.2
17	.211	.42	.63	.84	.05	.26	.47	.68	.89	2.6	5.3	7.9	50.5	3.2
18	.204	.41	.61	.81	1.02	.22	.43	.63	.83	2.2	4.4	6.7	48.9	61.1
19	.197	.39	.59	.79	0.98	.18	.38	.58	.77	1.8	3.6	5.5	7.3	59.1
49 20	20.190	40.38	60.57	80.76	100.95	121.14	141.33	161.52	181.71	1211.4	2422.8	3634.2	4845.6	6057.1
21	.183	.37	.55	.73	.92	.10	.28	.47	.65	1.0	2.0	3.0	4.0	5.0
22	.177	.35	.53	.71	.88	.06	.23	.41	.59	0.6	1.2	1.8	2.4	3.0
23	.170	.34	.51	.68	.85	1.02	.19	.36	.53	10.2	20.3	30.5	40.7	50.9
24	.163	.33	.49	.65	.81	0.98	.14	.30	.47	09.8	19.5	29.3	39.1	48.9
49 25	20.156	40.31	60.47	80.62	100.78	120.94	141.09	161.25	181.41	1209.4	2418.7	3628.1	4837.4	6046.8
26	.149	.30	.45	.60	.75	.90	1.04	.19	.34	9.0	7.9	6.9	5.8	4.8
27	.142	.28	.43	.57	.71	.85	0.99	.14	.28	8.5	7.1	5.6	4.2	2.7
28	.136	.27	.41	.54	.68	.81	.95	.08	.22	8.1	6.2	4.4	2.5	40.7
29	.129	.26	.39	.51	.64	.77	.90	1.03	.16	7.7	5.4	3.2	30.9	38.6
49 30	20.122	40.24	60.37	80.49	100.61	120.73	140.85	160.98	181.10	1207.3	2414.6	3621.9	4829.3	6036.6
31	.115	.23	.35	.46	.58	.69	.80	.92	1.04	6.9	3.8	20.7	7.6	4.5
32	.108	.22	.33	.43	.54	.65	.75	.87	0.98	6.5	3.0	19.5	6.0	2.5
33	.101	.20	.30	.40	.51	.61	.71	.81	.91	6.1	2.1	8.2	4.3	30.4
34	.095	.19	.28	.38	.47	.57	.66	.76	.85	5.7	1.3	7.0	2.7	28.4
49 35	20.088	40.18	60.26	80.35	100.44	120.53	140.61	160.70	180.79	1205.3	2410.5	3615.8	4821.0	6026.3
36	.081	.16	.24	.32	.41	.49	.56	.65	.73	4.9	09.7	4.5	19.4	4.3
37	.074	.15	.22	.30	.37	.44	.51	.59	.67	4.4	8.9	3.3	7.8	2.2
38	.067	.13	.20	.27	.34	.40	.47	.54	.60	4.0	8.0	2.1	6.1	20.1
39	.060	.12	.18	.24	.30	.36	.42	.48	.54	3.6	7.2	10.9	4.5	18.1
49 40	20.053	40.11	60.16	80.21	100.27	120.32	140.37	160.43	180.48	1203.2	2406.4	3609.6	4812.8	6016.0
41	.047	.09	.14	.19	.24	.28	.32	.37	.42	2.8	5.6	8.4	11.2	4.0
42	.040	.08	.12	.16	.20	.24	.27	.32	.36	2.4	4.8	7.2	09.5	11.9
43	.033	.07	.10	.13	.17	.20	.23	.26	.29	2.0	3.9	5.9	7.9	09.9
44	.026	.05	.08	.10	.13	.16	.18	.21	.23	1.6	3.1	4.7	6.2	7.8
49 45	20.019	40.04	60.06	80.08	100.10	120.12	140.13	160.15	180.17	1201.2	2402.3	3603.4	4804.6	6005.8
46	.012	.02	.04	.05	.06	.07	.08	.10	.11	0.7	1.5	2.2	3.0	3.7
47	.005	.01	.02	80.02	100.02	20.03	40.03	60.04	80.05	200.3	400.7	601.0	801.3	6001.6
48	19.999	40.00	60.00	79.99	99.99	19.99	39.99	59.99	79.98	199.9	399.8	599.7	799.7	5999.6
49	.992	39.98	59.97	.97	.95	.95	.94	.93	.92	9.5	9.0	8.5	8.0	7.5
49 50	19.985	39.97	59.95	79.94	99.92	119.91	139.89	159.88	179.86	1199.1	2398.2	3597.3	4796.4	5995.5
51	.978	.96	.93	.91	.89	.87	.84	.82	.80	8.7	7.4	6.0	4.7	3.4
52	.971	.94	.91	.89	.85	.83	.80	.77	.74	8.3	6.6	4.8	3.1	91.3
53	.964	.93	.89	.86	.82	.79	.75	.71	.68	7.9	5.7	3.6	91.4	89.3
54	.957	.91	.87	.83	.78	.74	.70	.66	.61	7.4	4.9	2.3	89.8	7.2
49 55	19.950	39.90	59.85	79.80	99.75	119.70	139.65	159.60	179.55	1197.0	2394.1	3591.1	4788.1	5985.1
56	.944	.89	.83	.78	.72	.66	.60	.55	.49	6.6	3.3	89.9	6.5	3.1
57	.937	.87	.81	.75	.68	.62	.55	.49	.43	6.2	2.4	8.6	4.8	81.0
58	.930	.86	.79	.72	.65	.58	.51	.44	.37	5.8	1.6	7.4	3.2	79.0
59	.923	.85	.77	.69	.61	.54	.46	.38	.30	5.4	90.7	6.1	81.5	6.9
49 60	19.916	39.83	59.75	79.66	99.58	119.50	139.41	159.33	179.24	1195.0	2389.9	3584.9	4779.9	5974.8

		Latitude 49° to 50°—Meridional arcs.					Latitude 49°—Co-ordinates of curvature.			
Lat.		Value of 1''	Sums of seconds for middle latitude 49° 30'		Value of 1'	Continuous sums of minutes from latitude 49° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.		Meters.	'	Meters.	° ' "	Meters.	Meters.
49 00	30.892				1853.50			0 1	1 219.6	0.1
1	2	1	30.89		.50	1	1 853.5	0 1	1 219.6	0.1
2	2	2	61.79		.51	2	3 707.0	2	2 439.1	0.5
3	2	3	92.68		.51	3	5 560.5	3	3 658.7	1.2
4	2	4	123.58		.52	4	7 414.0	4	4 878.3	2.1
49 05	30.892	5	154.47		1853.52	5	9 267.5	0 5	6 097.9	3.3
6	2	6	185.37		.53	6	11 121.1	6	7 317.5	4.8
7	2	7	216.26		.53	7	12 974.6	7	8 537.0	6.6
8	2	8	247.15		.54	8	14 828.1	8	9 756.6	8.6
9	2	9	278.05		.54	9	16 681.7	9	10 976.2	10.8
49 10	30.892	10	308.94		1853.55	10	18 535.2	0 10	12 195.8	13.4
11	3	1	339.84		.55	1	20 388.8	15	18 293.6	30.1
12	3	2	370.73		.56	2	22 242.3	20	24 391.3	53.5
13	3	3	401.63		.57	3	24 095.9	25	30 489.1	83.7
14	3	4	432.52		.57	4	25 949.5	30	36 586.8	120.5
49 15	30.893	15	463.41		1853.58	15	27 803.0	0 35	42 684.5	164.0
16	3	6	494.31		.58	6	29 656.6	40	48 782.1	214.2
17	3	7	525.20		.59	7	31 510.2	45	54 879.7	271.1
18	3	8	556.10		.59	8	33 363.8	50	60 977.2	334.7
19	3	9	586.99		.60	9	35 217.4	55	67 074.7	404.9
49 20	30.893	20	617.89		1853.60	20	37 071.0	1 00	73 172.0	481.9
21	3	1	648.78		.61	1	38 924.6	05	79 269.3	565.6
22	4	2	679.67		.61	2	40 778.2	10	85 366.5	656.0
23	4	3	710.57		.62	3	42 631.8	15	91 463.6	753.0
24	4	4	741.46		.63	4	44 485.4	20	97 560.5	856.7
49 25	30.894	25	772.36		1853.63	25	46 339.1	1 25	103 657.4	967.2
26	4	6	803.25		.64	6	48 192.7	30	109 754.1	1 084.3
27	4	7	834.15		.64	7	50 046.3	35	115 850.7	1 208.1
28	4	8	865.04		.65	8	51 900.0	40	121 947.1	1 338.6
29	4	9	895.93		.65	9	53 753.6	45	128 043.4	1 475.9
49 30	30.894	30	926.83		1853.66	30	55 607.3	1 50	134 139.6	1 619.8
31	4	1	957.72		.66	1	57 461.0	55	140 235.5	1 770.4
32	4	2	988.62		.67	2	59 314.6	2 00	146 331	1 928
33	5	3	1 019.51		.67	3	61 168.3	3 00	219 465	4 337
34	5	4	1 050.41		.68	4	63 022.0	4 00	292 561	7 709
49 35	30.895	35	1 081.30		1853.69	35	64 875.7	5 00	365 606	12 044
36	5	6	1 112.19		.69	6	66 729.4	6 00	438 588	17 340
37	5	7	1 143.09		.70	7	68 583.0	7 00	511 493	23 598
38	5	8	1 173.98		.70	8	70 436.7	8 00	584 310	30 815
39	5	9	1 204.88		.71	9	72 290.4	9 00	657 026	38 991
49 40	30.895	40	1 235.77		1853.71	40	74 144.2	10 00	729 627	48 123
41	5	1	1 266.67		.72	1	75 997.9	11 00	802 102	58 212
42	5	2	1 297.56		.72	2	77 851.6	12 00	874 438	69 254
43	5	3	1 328.46		.73	3	79 705.3	13 00	946 622	81 248
44	5	4	1 359.35		.73	4	81 559.1	14 00	1 018 642	94 191
49 45	30.896	45	1 390.24		1853.74	45	83 412.8	15 00	1 090 485	108 082
46	6	6	1 421.14		.75	6	85 266.5	16 00	1 162 138	122 918
47	6	7	1 452.03		.75	7	87 120.3	17 00	1 233 591	138 697
48	6	8	1 482.93		.76	8	88 974.0	18 00	1 304 829	155 416
49	6	9	1 513.82		.76	9	90 827.8	19 00	1 375 840	173 071
49 50	30.896	50	1 544.72		1853.77	50	92 681.6	20 00	1 446 613	191 660
51	6	1	1 575.61		.77	1	94 535.3	21 00	1 517 135	211 180
52	6	2	1 606.50		.78	2	96 389.1	22 00	1 587 394	231 627
53	6	3	1 637.40		.78	3	98 242.9	23 00	1 657 378	252 998
54	6	4	1 668.29		.79	4	100 096.7	24 00	1 727 073	275 288
49 55	30.897	55	1 699.19		1853.79	55	101 950.5	25 00	1 796 470	298 495
56	7	6	1 730.08		.80	6	103 804.3	26 00	1 865 554	322 614
57	7	7	1 760.98		.80	7	105 658.1	27 00	1 934 315	347 640
58	7	8	1 791.87		.81	8	107 511.9	28 00	2 002 740	373 570
59	7	9	1 822.76		.82	9	109 365.7	29 00	2 070 817	400 399
49 60	30.897	60	1 853.66		1853.82	60	111 219.5	30 00	2 138 536	428 123

Latitude 50° to 51°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
50 00	19.916	39.83	59.75	79.66	99.58	119.50	139.41	159.33	179.24	1195.0	2389.9	3584.9	4779.9	5974.8
1	.909	.82	.73	.64	.55	.46	.36	.27	.18	4.6	9.1	3.7	8.2	2.8
2	.902	.80	.71	.61	.51	.41	.31	.22	.12	4.1	8.3	2.4	6.6	70.7
3	.895	.79	.69	.58	.48	.37	.27	.16	9.06	3.7	7.4	81.2	4.9	68.6
4	.889	.78	.67	.55	.44	.33	.22	.11	9.00	3.3	6.6	79.9	3.2	6.6
50 05	19.882	39.76	59.64	79.53	99.41	119.29	139.17	159.05	178.93	1192.9	2385.8	3578.7	4771.6	5964.5
6	.875	.75	.62	.50	.38	.25	.12	9.00	.87	2.5	5.0	7.5	69.9	2.4
7	.868	.74	.60	.47	.34	.21	.07	8.94	.81	2.1	4.2	6.2	8.3	60.4
8	.861	.72	.58	.44	.31	.17	9.03	.89	.75	1.7	3.3	5.0	6.6	58.3
9	.854	.71	.56	.42	.27	.12	8.98	.83	.68	1.2	2.5	3.7	5.0	6.2
50 10	19.847	39.69	59.54	79.39	99.24	119.08	138.93	158.78	178.62	1190.8	2381.7	3572.5	4763.3	5954.2
11	.840	.68	.52	.36	.21	.04	.88	.72	.56	0.4	0.8	1.3	1.7	2.1
12	.833	.67	.50	.33	.17	9.00	.83	.67	.50	90.0	80.0	70.0	60.0	50.0
13	.826	.65	.48	.31	.14	8.96	.79	.61	.44	89.6	79.2	68.8	58.3	47.9
14	.820	.64	.46	.28	.10	.92	.74	.56	.37	9.2	8.3	7.5	6.7	5.9
50 15	19.813	39.63	59.44	79.25	99.07	118.88	138.69	158.50	178.31	1188.8	2377.5	3566.3	4755.0	5943.8
16	.806	.61	.42	.22	.03	.83	.64	.45	.25	8.3	6.7	5.0	3.4	41.7
17	.799	.60	.40	.20	9.00	.79	.59	.39	.19	7.9	5.9	3.8	1.7	39.6
18	.792	.58	.38	.17	8.96	.75	.55	.34	.13	7.5	5.0	2.5	50.1	7.6
19	.785	.57	.35	.14	.93	.71	.50	.28	.06	7.1	4.2	1.3	48.4	5.5
50 20	19.778	39.56	59.33	79.11	98.89	118.67	138.45	158.22	178.00	1186.7	2373.4	3560.1	4746.7	5933.4
21	.771	.54	.31	.09	.86	.63	.40	.17	7.94	6.3	2.6	58.8	5.1	31.4
22	.764	.53	.29	.06	.82	.59	.35	.11	.88	5.9	1.7	7.6	3.4	29.3
23	.757	.51	.27	.03	.79	.54	.30	.06	.81	5.4	0.9	6.3	1.8	7.2
24	.750	.50	.25	9.00	.75	.50	.25	8.00	.75	5.0	70.0	5.1	40.1	5.1
50 25	19.743	39.49	59.23	78.97	98.72	118.46	138.21	157.95	177.69	1184.6	2369.2	3553.8	4738.4	5923.0
26	.737	.47	.21	.95	.68	.42	.16	.89	.63	4.2	8.4	2.6	6.8	21.0
27	.730	.46	.19	.92	.65	.38	.11	.84	.57	3.8	7.6	1.3	5.1	18.9
28	.723	.45	.17	.89	.61	.34	.06	.78	.50	3.4	6.7	50.1	3.4	6.8
29	.716	.43	.15	.86	.58	.29	8.01	.73	.44	2.9	5.9	48.8	1.8	4.7
50 30	19.709	39.42	59.13	78.84	98.54	118.25	137.96	157.67	177.38	1182.5	2365.1	3547.6	4730.1	5912.6
31	.702	.40	.11	.81	.51	.21	.91	.61	.32	2.1	4.2	6.3	28.4	10.6
32	.695	.39	.09	.78	.47	.17	.86	.56	.25	1.7	3.4	5.1	6.8	08.5
33	.688	.38	.06	.75	.44	.13	.82	.50	.19	1.3	2.6	3.8	5.1	6.4
34	.681	.36	.04	.72	.40	.09	.77	.45	.13	0.9	1.7	2.6	3.5	4.3
50 35	19.674	39.35	59.02	78.70	98.37	118.04	137.72	157.39	177.06	1180.4	2360.9	3541.3	4721.8	5902.2
36	.667	.33	9.00	.67	.34	8.00	.67	.34	7.00	80.0	60.1	40.1	20.1	900.1
37	.660	.32	8.98	.64	.30	7.96	.62	.28	6.94	79.6	59.2	38.8	18.5	898.1
38	.653	.31	.96	.61	.27	.92	.58	.23	.88	9.2	8.4	7.6	6.8	6.0
39	.646	.29	.94	.58	.23	.88	.53	.17	.81	8.8	7.5	6.3	5.1	3.9
50 40	19.639	39.28	58.92	78.56	98.20	117.84	137.48	157.12	176.75	1178.4	2356.7	3535.1	4713.5	5891.8
41	.632	.26	.90	.53	.16	.79	.43	.06	.69	7.9	5.9	3.8	1.8	89.7
42	.625	.25	.88	.50	.13	.75	.38	7.00	.63	7.5	5.1	2.6	10.1	7.6
43	.618	.24	.86	.47	.10	.71	.33	6.95	.56	7.1	4.2	1.3	08.4	5.5
44	.612	.22	.84	.45	.06	.67	.28	.89	.50	6.7	3.4	30.1	6.8	3.5
50 45	19.605	39.21	58.81	78.42	98.03	117.63	137.24	156.84	176.44	1176.3	2352.6	3528.8	4705.1	5881.4
46	.598	.20	.79	.39	7.99	.59	.19	.78	.38	5.9	1.7	7.6	3.4	79.3
47	.591	.18	.77	.36	.95	.54	.14	.73	.32	5.4	0.9	6.3	1.8	7.2
48	.584	.17	.75	.34	.92	.50	.09	.67	.25	5.0	50.1	5.1	700.1	5.1
49	.577	.15	.73	.31	.89	.46	7.04	.61	.19	4.6	49.2	3.8	698.4	3.0
50 50	19.570	39.14	58.71	78.28	97.85	117.42	136.99	156.56	176.13	1174.2	2348.4	3522.6	4696.7	5870.9
51	.563	.13	.69	.25	.82	.38	.94	.45	.07	3.8	7.6	1.3	5.1	68.8
52	.556	.11	.67	.22	.78	.33	.89	.40	6.00	3.3	6.7	20.0	3.4	6.7
53	.549	.10	.65	.20	.75	.29	.84	.39	5.94	2.9	5.9	18.8	1.7	4.6
54	.542	.08	.63	.17	.71	.25	.79	.33	.88	2.5	5.0	7.5	90.0	2.6
50 55	19.535	39.07	58.60	78.14	97.68	117.21	136.75	156.28	175.81	1172.1	2344.2	3516.3	4688.4	5860.5
56	.528	.06	.58	.11	.64	.17	.70	.22	.75	1.7	3.4	5.0	6.7	58.4
57	.521	.04	.56	.08	.61	.13	.65	.17	.69	1.3	2.5	3.8	5.0	6.3
58	.514	.03	.54	.06	.57	.08	.60	.11	.63	0.8	1.7	2.5	3.3	4.2
59	.507	.01	.52	.03	.54	.04	.55	.06	.56	0.4	0.8	1.3	1.7	2.1
50 60	19.500	39.00	58.50	78.00	97.50	117.00	136.50	156.00	175.50	1170.0	2340.0	3510.0	4680.0	5850.0

Lat.	Latitude 50° to 51°—Meridional arcs.						Latitude 50°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 50° 30'		Value of 1'	Continuous sums of minutes from latitude 50° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
50 00	30.897			1853.82					
1	7	1	30.90	.83	1	1 853.8	0 1	1 195.0	0.1
2	7	2	61.80	.83	2	3 707.7	2	2 389.9	0.5
3	7	3	92.70	.84	3	5 561.5	3	3 584.9	1.2
4	7	4	123.60	.84	4	7 415.3	4	4 779.9	2.1
50 05	30.897	5	154.50	1853.85	5	9 269.2	0 5	5 974.8	3.3
6	8	6	185.40	.85	6	11 123.0	6	7 169.8	4.8
7	8	7	216.30	.86	7	12 976.9	7	8 364.8	6.5
8	8	8	247.20	.86	8	14 830.7	8	9 559.7	8.5
9	8	9	278.10	.87	9	16 684.6	9	10 754.7	10.8
50 10	30.898	10	309.00	1853.88	10	18 538.5	0 10	11 949.7	13.3
11	8	1	339.90	.88	1	20 392.4	15	17 924.5	30.0
12	8	2	370.80	.89	2	22 246.2	20	23 899.3	53.3
13	8	3	401.70	.89	3	24 100.1	25	29 874.1	83.2
14	8	4	432.60	.90	4	25 954.0	30	35 848.8	119.8
50 15	30.898	15	463.50	1853.90	15	27 807.9	0 35	41 823.5	163.1
16	8	6	494.40	.91	6	29 661.8	40	47 798.1	213.0
17	9	7	525.30	.91	7	31 515.7	45	53 772.7	269.6
18	9	8	556.19	.92	8	33 369.7	50	59 747.2	332.8
19	9	9	587.09	.92	9	35 223.6	55	65 721.6	402.8
50 20	30.899	20	617.99	1853.93	20	37 077.5	1 00	71 696.0	479.3
21	9	1	648.89	.93	1	38 931.4	05	77 670.2	562.5
22	9	2	679.79	.94	2	40 785.4	10	83 644.4	652.4
23	9	3	710.69	.95	3	42 639.3	15	89 618.5	748.9
24	9	4	741.59	.95	4	44 493.3	20	95 592.4	852.1
50 25	30.899	25	772.49	1853.96	25	46 347.2	1 25	101 566.2	961.9
26	9	6	803.39	.96	6	48 201.2	30	107 540.0	1 078.4
27	899	7	834.29	.97	7	50 055.2	35	113 513.5	1 201.5
28	900	8	865.19	.97	8	51 909.1	40	119 486.9	1 331.3
29	0	9	896.09	.98	9	53 763.1	45	125 460.2	1 467.8
50 30	30.900	30	926.99	1853.98	30	55 617.1	1 50	131 433.3	1 610.9
31	0	1	957.89	.99	1	57 471.0	55	137 406.3	1 760.7
32	0	2	988.79	3.99	2	59 325.0	2 00	143 379	1 917
33	0	3	1 019.69	4.00	3	61 179.0	3 00	215 037	4 313
34	0	4	1 050.59	.00	4	63 033.0	4 00	286 656	7 667
50 35	30.900	35	1 081.49	1854.01	35	64 887.0	5 00	358 224	11 978
36	0	6	1 112.39	.02	6	66 741.1	6 00	429 727	17 246
37	0	7	1 143.29	.02	7	68 595.1	7 00	501 154	23 469
38	0	8	1 174.19	.03	8	70 449.1	8 00	572 492	30 646
39	1	9	1 205.09	.03	9	72 303.2	9 00	643 727	38 777
50 40	30.901	40	1 235.99	1854.04	40	74 157.2	10 00	714 847	47 859
41	1	1	1 266.89	.04	1	76 011.2	11 00	785 839	57 891
42	1	2	1 297.79	.05	2	77 865.2	12 00	856 691	68 872
43	1	3	1 328.69	.05	3	79 719.3	13 00	927 389	80 798
44	1	4	1 359.59	.06	4	81 573.4	14 00	997 922	93 669
50 45	30.901	45	1 390.49	1854.06	45	83 427.4	15 00	1 068 277	107 482
46	1	6	1 421.39	.07	6	85 281.5	16 00	1 138 440	122 234
47	1	7	1 452.29	.07	7	87 135.6	17 00	1 208 400	137 923
48	1	8	1 483.19	.08	8	88 989.6	18 00	1 278 144	154 546
49	1	9	1 514.09	.09	9	90 843.7	19 00	1 347 660	172 099
50 50	30.902	50	1 544.99	1854.09	50	92 697.8	20 00	1 416 934	190 581
51	2	1	1 575.89	.10	1	94 551.9	21 00	1 485 956	209 987
52	2	2	1 606.79	.10	2	96 406.0	22 00	1 554 711	230 314
53	2	3	1 637.69	.11	3	98 260.1	23 00	1 623 189	251 559
54	2	4	1 668.58	.11	4	100 114.2	24 00	1 691 377	273 717
50 55	30.902	55	1 699.48	1854.12	55	101 968.4	25 00	1 759 262	296 785
56	2	5	1 730.38	.12	6	103 822.5	26 00	1 826 833	320 758
57	2	7	1 761.28	.13	7	105 676.6	27 00	1 894 077	345 633
58	2	8	1 792.18	.13	8	107 530.7	28 00	1 960 983	371 404
59	2	9	1 823.08	.14	9	109 384.9	29 00	2 027 538	398 068
50 60	30.902	60	1 853.98	1854.14	60	111 239.0	30 00	2 093 731	425 619

Latitude 51° to 52°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
51 00	19.500	39.00	58.50	78.00	97.50	117.00	136.50	156.00	175.50	1170.0	2340.0	3510.0	4680.0	5850.0
1	.493	8.99	.48	7.97	.47	6.96	.45	5.94	.44	69.6	39.2	08.7	78.3	47.9
2	.486	.97	.46	.94	.43	.92	.40	.89	.37	9.2	8.3	7.5	6.6	5.8
3	.479	.96	.44	.92	.40	.87	.35	.83	.31	8.7	7.5	6.2	5.0	3.7
4	.472	.94	.42	.89	.36	.83	.30	.78	.25	8.3	6.6	5.0	3.3	41.6
51 05	19.465	38.93	58.39	77.86	97.33	116.79	136.26	155.72	175.18	1167.9	2335.8	3503.7	4671.6	5839.5
6	.458	.92	.37	.83	.29	.75	.21	.66	.12	7.5	5.0	2.4	69.9	7.4
7	.451	.90	.35	.80	.26	.71	.16	.61	.06	7.1	4.1	501.2	8.2	5.3
8	.444	.89	.33	.78	.22	.66	.11	.55	5.00	6.6	3.3	499.9	6.6	3.2
9	.437	.87	.31	.75	.19	.62	.06	.50	4.93	6.2	2.4	8.7	4.9	31.1
51 10	19.430	38.86	58.29	77.72	97.15	116.58	136.01	155.44	174.87	1165.8	2331.6	3497.4	4663.2	5829.0
11	.423	.85	.27	.69	.12	.54	5.96	.38	.81	5.4	30.8	6.1	61.5	6.9
12	.416	.83	.25	.66	.08	.50	.91	.33	.74	5.0	29.9	4.9	59.8	4.8
13	.409	.82	.23	.64	.05	.45	.86	.27	.68	4.5	9.1	3.6	8.2	2.7
14	.402	.80	.21	.61	7.01	.41	.81	.22	.62	4.1	8.2	2.4	6.5	20.6
51 15	19.395	38.79	58.18	77.58	96.98	116.37	135.77	155.16	174.55	1163.7	2327.4	3491.1	4654.8	5818.5
16	.388	.78	.16	.55	.94	.33	.72	.10	.49	3.3	6.6	89.8	3.1	6.4
17	.381	.76	.14	.52	.91	.29	.67	5.05	.43	2.9	5.7	8.6	51.4	4.3
18	.374	.75	.12	.50	.87	.24	.62	4.99	.37	2.4	4.9	7.3	49.7	2.2
19	.367	.73	.10	.47	.84	.20	.57	.94	.30	2.0	4.0	6.0	8.1	10.1
51 20	19.360	38.72	58.08	77.44	96.80	116.16	135.52	154.88	174.24	1161.6	2323.2	3484.8	4646.4	5808.0
21	.353	.71	.06	.41	.77	.12	.47	.82	.18	1.2	2.4	3.5	4.7	5.9
22	.346	.69	.04	.38	.73	.08	.42	.77	.11	0.8	1.5	2.3	3.0	3.8
23	.339	.68	.02	.36	.70	6.03	.37	.71	4.05	60.3	20.7	81.0	41.3	801.7
24	.332	.66	8.00	.33	.66	5.99	.32	.65	3.99	59.9	19.8	79.7	39.6	799.5
51 25	19.325	38.65	57.97	77.30	96.63	115.95	135.28	154.60	173.92	1159.5	2319.0	3478.5	4638.0	5797.4
26	.318	.64	.95	.27	.59	.91	.23	.54	.86	9.1	8.2	7.2	6.3	5.3
27	.311	.62	.93	.24	.55	.86	.18	.49	.80	8.6	7.3	5.9	4.6	3.2
28	.304	.61	.91	.22	.52	.82	.13	.43	.74	8.2	6.5	4.7	2.9	91.1
29	.297	.59	.89	.19	.49	.78	.08	.37	.67	7.8	5.6	3.4	31.2	89.0
51 30	19.290	38.58	57.87	77.16	96.45	115.74	135.03	154.32	173.61	1157.4	2314.8	3472.1	4629.5	5786.9
31	.283	.57	.85	.13	.42	.70	4.98	.26	.55	7.0	3.9	70.9	7.8	4.8
32	.276	.55	.83	.10	.38	.65	.93	.20	.48	6.5	3.1	69.6	6.1	2.7
33	.269	.54	.81	.07	.35	.61	.88	.15	.42	6.1	2.2	8.3	4.4	80.6
34	.261	.52	.78	.05	.31	.57	.83	.09	.35	5.7	1.4	7.1	2.8	78.4
51 35	19.254	38.51	57.76	77.02	96.28	115.53	134.78	154.04	173.29	1155.3	2310.5	3465.8	4621.1	5776.3
36	.247	.49	.74	6.99	.24	.48	.73	3.98	.23	4.8	09.7	4.5	19.4	4.2
37	.240	.48	.72	.96	.21	.44	.68	.92	.16	4.4	8.8	3.3	7.7	2.1
38	.233	.47	.70	.93	.17	.40	.63	.87	.10	4.0	8.0	2.0	6.0	70.0
39	.226	.45	.68	.90	.14	.36	.58	.81	3.03	3.6	7.1	60.7	4.3	67.9
51 40	19.219	38.44	57.66	76.88	96.10	115.32	134.53	153.75	172.97	1153.2	2306.3	3459.5	4612.6	5765.8
41	.212	.42	.64	.85	.06	.27	.48	.70	.91	2.7	5.5	8.2	10.9	3.7
42	.205	.41	.62	.82	6.03	.23	.43	.64	.84	2.3	4.6	6.9	09.2	61.5
43	.198	.40	.59	.79	5.99	.19	.38	.58	.78	1.9	3.8	5.6	7.5	59.4
44	.191	.38	.57	.76	.96	.15	.33	.53	.72	1.5	2.9	4.4	5.8	7.3
51 45	19.184	38.37	57.55	76.74	95.92	115.10	134.29	153.47	172.65	1151.0	2302.1	3453.1	4604.1	5755.2
46	.177	.35	.53	.71	.88	.06	.24	.41	.59	0.6	1.2	1.8	2.4	3.1
47	.170	.34	.51	.68	.85	5.02	.19	.36	.53	50.2	300.4	50.6	600.8	50.9
48	.163	.33	.49	.65	.81	4.98	.14	.30	.47	49.8	299.5	49.3	599.1	48.8
49	.156	.31	.47	.62	.78	.93	.09	.25	.40	9.3	8.7	8.0	7.4	6.7
51 50	19.149	38.30	57.45	76.59	95.74	114.89	134.04	153.19	172.34	1148.9	2297.8	3446.8	4595.7	5744.6
51	.142	.28	.43	.57	.71	.85	3.99	.13	.28	8.5	7.0	5.5	4.0	2.5
52	.134	.27	.40	.54	.67	.81	.94	.08	.21	8.1	6.1	4.2	2.3	40.3
53	.127	.25	.38	.51	.64	.76	.89	3.02	.15	7.6	5.3	2.9	90.6	38.2
54	.120	.24	.36	.48	.60	.72	.84	2.96	.08	7.2	4.4	1.7	88.9	6.1
51 55	19.113	38.23	57.34	76.45	95.57	114.68	133.80	152.91	172.02	1146.8	2293.6	3440.4	4587.2	5734.0
56	.106	.21	.32	.42	.53	.64	.75	.85	1.96	6.4	2.7	39.1	5.5	31.8
57	.099	.20	.30	.40	.50	.59	.70	.79	.89	5.9	1.9	7.8	3.8	29.7
58	.092	.18	.28	.37	.46	.55	.65	.74	.83	5.5	1.0	6.6	2.1	7.6
59	.085	.17	.25	.34	.43	.51	.60	.68	.76	5.1	90.2	5.3	80.4	5.5
51 60	19.078	38.16	57.23	76.31	95.39	114.47	133.55	152.62	171.70	1144.7	2289.3	3434.0	4578.7	5723.4

Lat.	Latitude 51° to 52°—Meridional arcs.						Latitude 51°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 51° 30'		Value of 1'	Continuous sums of minutes from latitude 51° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
51 00	30.902			1854.14			0 1	1 170.0	0.1
1	3	1	30.91	.15	1	1 854.1	0 2	2 340.0	0.5
2	3	2	61.81	.16	2	3 708.3	0 3	3 510.0	1.2
3	3	3	92.72	.16	3	5 562.5	0 4	4 680.0	2.1
4	3	4	123.62	.17	4	7 416.6	0 5	5 850.0	3.3
51 05	30.903	5	154.53	1854.17	5	9 270.8	0 6	7 020.0	4.8
6	3	6	185.43	.18	6	11 125.0	0 7	8 190.0	6.5
7	3	7	216.34	.18	7	12 979.1	0 8	9 360.0	8.5
8	3	8	247.24	.19	8	14 833.3	0 9	10 530.0	10.7
9	3	9	278.15	.19	9	16 687.5			
51 10	30.903	10	309.05	1854.20	10	18 541.7	0 10	11 700.0	13.2
11	3	1	339.96	.20	1	20 395.9	0 15	17 550.0	29.8
12	3	2	370.86	.21	2	22 250.1	0 20	23 399.9	52.9
13	4	3	401.77	.21	3	24 104.3	0 25	29 249.9	82.7
14	4	4	432.67	.22	4	25 958.6	0 30	35 099.7	119.0
51 15	30.904	15	463.58	1854.23	15	27 812.8	0 35	40 949.6	162.0
16	4	6	494.48	.23	6	29 667.0	0 40	46 799.4	211.6
17	4	7	525.39	.24	7	31 521.2	0 45	52 649.1	267.8
18	4	8	556.29	.24	8	33 375.5	0 50	58 498.8	330.6
19	4	9	587.20	.25	9	35 229.7	0 55	64 348.4	400.0
51 20	30.904	20	618.10	1854.25	20	37 084.0	1 00	70 197.9	476.1
21	4	1	649.01	.26	1	38 938.2	1 05	76 047.3	558.7
22	4	2	679.91	.26	2	40 792.5	1 10	81 896.6	648.0
23	4	3	710.82	.27	3	42 646.8	1 15	87 745.8	743.9
24	5	4	741.72	.27	4	44 501.0	1 20	93 594.9	846.4
51 25	30.905	25	772.63	1854.28	25	46 355.3	1 25	99 443.9	955.5
26	5	6	803.53	.28	6	48 209.6	1 30	105 292.8	1 071.2
27	5	7	834.44	.29	7	50 063.9	1 35	111 141.5	1 193.5
28	5	8	865.34	.29	8	51 918.2	1 40	116 990.1	1 322.4
29	5	9	896.25	.30	9	53 772.5	1 45	122 838.5	1 458.0
51 30	30.905	30	927.15	1854.31	30	55 626.8	1 50	128 686.8	1 600.1
31	5	1	958.06	.31	1	57 481.1	1 55	134 534.9	1 748.9
32	5	2	988.96	.32	2	59 335.4	2 00	140 383	1 904
33	5	3	1 019.87	.32	3	61 189.7	2 05	146 231.1	2 064.4
34	5	4	1 050.77	.33	4	63 044.0	2 10	152 079.2	2 229.9
51 35	30.906	35	1 081.68	1854.33	35	64 898.4	2 15	157 927.3	2 401.4
36	6	6	1 112.58	.34	6	66 752.7	2 20	163 775.4	2 578.9
37	6	7	1 143.49	.34	7	68 607.0	2 25	169 623.5	2 762.4
38	6	8	1 174.39	.35	8	70 461.4	2 30	175 471.6	2 951.9
39	6	9	1 205.30	.35	9	72 315.7	2 35	181 319.7	3 147.4
51 40	30.906	40	1 236.20	1854.36	40	74 170.1	2 40	187 167.8	3 348.9
41	6	1	1 267.11	.36	1	76 024.5	2 45	193 015.9	3 556.4
42	6	2	1 298.01	.37	2	77 878.8	2 50	198 864.0	3 770.0
43	6	3	1 328.92	.38	3	79 733.2	2 55	204 712.1	3 989.5
44	6	4	1 359.82	.38	4	81 587.6	2 60	210 560.2	4 215.0
51 45	30.906	45	1 390.73	1854.39	45	83 442.0	2 65	216 408.3	4 446.5
46	7	6	1 421.63	.39	6	85 296.3	2 70	222 256.4	4 683.0
47	7	7	1 452.54	.40	7	87 150.7	2 75	228 104.5	4 925.5
48	7	8	1 483.44	.40	8	89 005.1	2 80	233 952.6	5 174.0
49	7	9	1 514.35	.41	9	90 859.5	2 85	239 800.7	5 428.5
51 50	30.907	50	1 545.25	1854.41	50	92 713.9	2 90	245 648.8	5 689.0
51	7	1	1 576.16	.42	1	94 568.4	2 95	251 496.9	5 955.5
52	7	2	1 607.06	.42	2	96 422.8	3 00	257 345.0	6 228.0
53	7	3	1 637.97	.43	3	98 277.2	3 05	263 193.1	6 506.5
54	7	4	1 668.88	.43	4	100 131.6	3 10	269 041.2	6 791.0
51 55	30.907	55	1 699.78	1854.44	55	101 986.1	3 15	274 889.3	7 081.5
56	7	6	1 730.69	.44	6	103 840.5	3 20	280 737.4	7 378.0
57	8	7	1 761.59	.45	7	105 695.0	3 25	286 585.5	7 680.5
58	8	8	1 792.50	.46	8	107 549.4	3 30	292 433.6	7 989.0
59	8	9	1 823.40	.46	9	109 403.9	3 35	298 281.7	8 303.5
51 60	30.908	60	1 854.31	1854.47	60	111 258.3	3 40	304 129.8	8 624.0

Latitude 52° to 53°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
52 0	19.078	38.16	57.23	76.31	95.39	114.47	133.55	152.62	171.70	1144.7	2289.3	3434.0	4578.7	5723.4
1	.071	.14	.21	.28	.36	.42	.50	.57	.64	4.2	8.5	12.7	17.0	21.2
2	.064	.13	.19	.25	.32	.38	.45	.51	.57	3.8	7.6	11.5	15.3	19.1
3	.057	.11	.17	.23	.29	.34	.40	.45	.51	3.4	6.8	10.2	13.6	17.0
4	.049	.10	.15	.20	.25	.30	.35	.40	.44	3.0	5.9	8.9	11.9	14.8
52 05	19.042	38.08	57.13	76.17	95.22	114.25	133.30	152.34	171.38	1142.5	2285.1	3427.6	4570.2	5712.7
6	.035	.07	.11	.14	.18	.21	.25	.28	.32	2.1	4.2	6.4	8.5	10.6
7	.028	.06	.08	.11	.14	.17	.20	.23	.25	1.7	3.4	5.1	6.8	8.5
8	.021	.04	.06	.08	.11	.13	.15	.17	.19	1.3	2.5	3.8	5.1	6.3
9	.014	.03	.04	.06	.07	.08	.10	.11	.12	0.8	1.7	2.5	3.4	4.2
52 10	19.007	38.01	57.02	76.03	95.04	114.04	133.05	152.06	171.06	1140.4	2280.8	3421.3	4561.7	5702.1
11	9.000	8.00	7.00	6.00	5.00	4.00	3.00	2.00	1.00	40.0	80.0	120.0	160.0	200.0
12	8.993	7.99	6.98	5.97	4.97	3.96	2.95	1.94	0.93	39.6	79.1	118.7	158.3	197.8
13	.986	.97	.96	.94	.93	.91	.90	.88	.87	9.1	8.3	7.4	6.5	5.7
14	.979	.96	.94	.91	.90	.87	.85	.83	.81	8.7	7.4	6.1	4.8	3.6
52 15	18.971	37.94	56.91	75.89	94.86	113.83	132.80	151.77	170.74	1138.3	2276.6	3414.9	4553.1	5691.4
16	.964	.93	.89	.86	.82	.79	.75	.71	.68	7.9	5.7	3.6	51.4	89.3
17	.957	.92	.87	.83	.79	.74	.70	.66	.61	7.4	4.9	2.3	49.7	7.2
18	.950	.90	.85	.80	.75	.70	.65	.60	.55	7.0	4.0	11.0	8.0	5.0
19	.943	.89	.83	.77	.72	.66	.60	.54	.48	6.6	3.2	09.7	6.3	2.9
52 20	18.936	37.87	56.81	75.74	94.68	113.62	132.55	151.49	170.42	1136.2	2272.3	3408.5	4544.6	5680.8
21	.929	.86	.79	.71	.64	.57	.50	.43	.36	5.7	1.4	7.2	2.9	78.6
22	.922	.84	.77	.69	.61	.53	.45	.37	.29	5.3	70.6	5.9	41.2	6.5
23	.914	.83	.74	.66	.57	.49	.40	.32	.23	4.9	69.7	4.6	39.5	4.3
24	.907	.81	.72	.63	.54	.44	.35	.26	.16	4.4	8.9	3.3	7.8	2.2
52 25	18.900	37.80	56.70	75.60	94.50	113.40	132.30	151.20	170.10	1134.0	2268.0	3402.0	4536.0	5670.1
26	.893	.79	.68	.57	.46	.36	.25	.14	70.04	3.6	7.2	400.8	4.3	67.9
27	.886	.77	.66	.54	.43	.32	.20	.09	69.97	3.2	6.3	399.5	2.6	5.8
28	.879	.76	.64	.52	.39	.27	.15	1.03	.91	2.7	5.5	8.2	30.9	3.7
29	.872	.74	.61	.49	.36	.23	.10	0.97	.84	2.3	4.6	6.9	29.2	61.5
52 30	18.865	37.73	56.59	75.46	94.32	113.19	132.05	150.92	169.78	1131.9	2263.8	3395.6	4527.5	5659.4
31	.857	.71	.57	.43	.29	.14	2.00	.86	.72	1.4	2.9	4.3	5.8	7.2
32	.850	.70	.55	.40	.25	.10	1.95	.80	.65	1.0	2.1	3.1	4.1	5.1
33	.843	.69	.53	.37	.22	.06	.90	.75	.59	0.6	1.2	1.8	2.4	2.9
34	.836	.67	.51	.35	.18	3.02	.85	.69	.52	30.2	60.3	90.5	20.6	50.8
52 35	18.829	37.66	56.49	75.32	94.15	112.97	131.80	150.63	169.46	1129.7	2259.5	3389.2	4518.9	5648.7
36	.822	.64	.46	.29	.11	.93	.75	.57	.40	9.3	8.6	7.9	7.2	6.5
37	.815	.63	.44	.26	.08	.89	.70	.52	.33	8.9	7.8	6.6	5.5	4.4
38	.807	.61	.42	.23	.04	.84	.65	.46	.27	8.4	6.9	5.3	3.8	2.2
39	.800	.60	.40	.20	4.01	.80	.60	.40	.20	8.0	6.1	4.1	2.1	40.1
52 40	18.793	37.59	56.38	75.17	93.97	112.76	131.55	150.35	169.14	1127.6	2255.2	3382.8	4510.4	5638.0
41	.786	.57	.36	.14	.93	.72	.50	.29	.08	7.2	4.3	1.5	508.6	5.8
42	.779	.56	.34	.12	.90	.67	.45	.23	9.01	6.7	3.5	80.2	6.9	3.7
43	.772	.54	.31	.09	.86	.63	.40	.17	8.95	6.3	2.6	78.9	5.2	31.5
44	.765	.53	.29	.06	.83	.59	.35	.12	.88	5.9	1.8	7.6	3.5	29.4
52 45	18.757	37.51	56.27	75.03	93.79	112.54	131.30	150.06	168.82	1125.4	2250.9	3376.3	4501.8	5627.2
46	.750	.50	.25	5.00	.75	.50	.25	50.00	.75	5.0	50.0	5.0	500.1	5.1
47	.743	.49	.23	4.97	.72	.46	.20	49.94	.69	4.6	49.2	3.8	498.3	2.9
48	.736	.47	.21	.94	.68	.42	.15	.89	.62	4.2	8.3	2.5	6.6	20.8
49	.729	.46	.19	.92	.65	.37	.10	.83	.56	3.7	7.5	71.2	4.9	18.6
52 50	18.722	37.44	56.16	74.89	93.61	112.33	131.05	149.77	168.49	1123.3	2246.6	3369.9	4493.2	5616.5
51	.714	.43	.14	.86	.57	.29	0.00	.72	.43	2.9	5.7	8.6	91.6	4.3
52	.707	.41	.12	.83	.54	.24	.95	.66	.36	2.4	4.9	7.3	89.7	2.2
53	.700	.40	.10	.80	.50	.20	.90	.60	.30	2.0	4.0	6.0	8.0	10.0
54	.693	.39	.08	.77	.47	.16	.85	.54	.23	1.6	3.2	4.7	6.3	07.9
52 55	18.686	37.37	56.06	74.74	93.43	112.11	130.80	149.49	168.17	1121.1	2242.3	3363.4	4484.6	5605.7
56	.678	.36	.03	.71	.39	.07	.75	.43	.10	0.7	1.4	2.1	2.9	3.4
57	.671	.34	6.01	.69	.36	2.03	.70	.37	8.04	20.3	40.6	60.9	81.1	601.4
58	.664	.33	5.99	.66	.32	1.99	.65	.31	7.98	19.9	39.7	59.6	79.4	599.3
59	.657	.31	.97	.63	.29	.94	.60	.26	.91	9.4	8.9	8.3	7.7	7.1
52 60	18.650	37.30	55.95	74.60	93.25	111.90	130.55	149.20	167.85	1119.0	2238.0	3357.0	4476.0	5595.0

Lat.	Latitude 52° to 53°—Meridional arcs.						Latitude 52°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 52° 30'		Value of 1'	Continuous sums of minutes from latitude 52° 00'		Longitude.	X.	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
52 00	30.908			1854.47			0 1	1 144.7	0.1
1	8	1	30.91	.47	1	1 854.5	0 2	2 289.3	0.5
2	8	2	61.82	.48	2	3 708.9	0 3	3 434.0	1.2
3	8	3	92.73	.48	3	5 563.4	0 4	4 578.7	2.1
4	8	4	123.64	.49	4	7 417.9	0 5	5 723.4	3.3
52 05	30.908	5	154.55	1854.49	5	9 272.4	0 6	6 868.0	4.7
6	8	6	185.46	.50	6	11 126.9	0 7	8 012.7	6.4
7	8	7	216.37	.50	7	12 981.4	0 8	9 157.4	8.4
8	8	8	247.28	.51	8	14 835.9	0 9	10 302.0	10.6
9	8	9	278.19	.51	9	16 690.4			
52 10	30.909	10	309.10	1854.52	10	18 544.9	0 10	11 446.7	13.1
11	9	1	340.01	.52	1	20 399.4	0 15	17 170.0	29.5
12	9	2	370.93	.53	2	22 254.0	0 20	22 893.4	52.5
13	9	3	401.84	.54	3	24 108.5	0 25	28 616.6	82.0
14	9	4	432.75	.54	4	25 963.0	0 30	34 339.9	118.1
52 15	30.909	15	463.66	1854.55	15	27 817.6	0 35	40 063.1	160.7
16	9	5	494.57	.55	5	29 672.1	0 40	45 786.3	209.9
17	9	6	525.48	.56	6	31 526.7	0 45	51 509.4	265.7
18	9	7	556.39	.56	7	33 381.3	0 50	57 232.4	328.0
19	9	8	587.30	.57	8	35 235.8	0 55	62 955.3	396.9
52 20	30.910	20	618.21	1854.57	20	37 090.4	1 00	68 678.2	472.3
21	0	1	649.12	.58	1	38 945.0	1 05	74 401.0	554.3
22	0	2	680.03	.58	2	40 799.6	1 10	80 123.6	642.8
23	0	3	710.94	.59	3	42 654.1	1 15	85 846.2	737.9
24	0	4	741.85	.59	4	44 508.7	1 20	91 568.7	839.6
52 25	30.910	25	772.76	1854.60	25	46 363.3	1 25	97 291.0	947.8
26	0	5	803.67	.60	5	48 217.9	1 30	103 013.2	1 062.6
27	0	6	834.58	.61	6	50 072.5	1 35	108 735.3	1 184.0
28	0	7	865.49	.62	7	51 927.2	1 40	114 457.2	1 311.9
29	0	8	896.40	.62	8	53 781.8	1 45	120 179.0	1 446.3
52 30	30.910	30	927.31	1854.63	30	55 636.4	1 50	125 900.7	1 587.4
31	1	1	958.22	.63	1	57 491.0	1 55	131 622.1	1 735.0
32	1	2	989.13	.64	2	59 345.7	2 00	137 343	1 889
33	1	3	1 020.04	.64	3	61 200.3	2 05	143 064	2 043
34	1	4	1 050.95	.65	4	63 054.9	2 10	148 785	2 197
52 35	30.911	35	1 081.87	1854.65	35	64 909.6	2 15	154 506	2 351
36	1	5	1 112.78	.66	5	66 764.2	2 20	160 227	2 505
37	1	6	1 143.69	.66	6	68 618.9	2 25	165 948	2 659
38	1	7	1 174.60	.67	7	70 473.6	2 30	171 669	2 813
39	1	8	1 205.51	.67	8	72 328.2	2 35	177 390	2 967
52 40	30.911	40	1 236.42	1854.68	40	74 182.9	2 40	183 111	3 121
41	1	1	1 267.33	.68	1	76 037.6	2 45	188 832	3 275
42	1	2	1 298.24	.69	2	77 892.3	2 50	194 553	3 429
43	2	3	1 329.15	.69	3	79 747.0	2 55	200 274	3 583
44	2	4	1 360.06	.70	4	81 601.7	3 00	206 000	3 737
52 45	30.912	45	1 390.97	1854.71	45	83 456.4	3 05	211 721	3 891
46	2	5	1 421.88	.71	5	85 311.1	3 10	217 442	4 045
47	2	6	1 452.79	.72	6	87 165.8	3 15	223 163	4 199
48	2	7	1 483.70	.72	7	89 020.5	3 20	228 884	4 353
49	2	8	1 514.61	.73	8	90 875.3	3 25	234 605	4 507
52 50	30.912	50	1 545.52	1854.73	50	92 730.0	3 30	240 326	4 661
51	2	1	1 576.43	.74	1	94 584.7	3 35	246 047	4 815
52	2	2	1 607.34	.74	2	96 439.5	3 40	251 768	4 969
53	2	3	1 638.25	.75	3	98 294.2	3 45	257 489	5 123
54	3	4	1 669.16	.75	4	100 149.0	3 50	263 210	5 277
52 55	30.913	55	1 700.07	1854.76	55	102 003.7	3 55	268 931	5 431
56	3	5	1 730.98	.76	5	103 858.5	4 00	274 652	5 585
57	3	6	1 761.89	.77	6	105 713.3	4 05	280 373	5 739
58	3	7	1 792.81	.77	7	107 568.0	4 10	286 094	5 893
59	3	8	1 823.72	.78	8	109 422.8	4 15	291 815	6 047
52 60	30.913	60	1 854.63	1854.78	60	111 277.6	4 20	297 536	6 201

Latitude 53° to 54°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
53 00	18.650	37.30	55.95	74.60	93.25	111.90	130.55	149.20	167.85	1119.0	2238.0	3357.0	4476.0	5595.0
1	.643	.29	.93	.57	.21	.86	.50	.14	.79	8.6	7.1	5.7	4.2	2.8
2	.635	.27	.91	.54	.18	.81	.45	.08	.72	8.1	6.3	4.4	2.5	90.6
3	.628	.26	.88	.51	.14	.77	.40	9.03	.66	7.7	5.4	3.1	70.8	88.5
4	.621	.24	.86	.49	.11	.73	.35	8.97	.59	7.3	4.6	1.8	69.1	6.3
53 05	18.614	37.23	55.84	74.46	93.07	111.68	130.30	148.91	167.53	1116.8	2233.7	3350.5	4467.3	5584.2
6	.607	.21	.82	.43	.03	.64	.25	.85	.46	6.4	2.8	49.2	5.6	82.0
7	.600	.20	.80	.40	3.00	.60	.20	.80	.40	6.0	2.0	7.9	3.9	79.9
8	.592	.18	.78	.37	2.96	.55	.15	.74	.33	5.5	1.1	6.6	2.2	7.7
9	.585	.17	.75	.34	.93	.51	.10	.68	.27	5.1	30.2	5.3	60.4	5.5
53 10	18.578	37.16	55.73	74.31	92.89	111.47	130.05	148.62	167.20	1114.7	2229.4	3344.0	4458.7	5573.4
11	.571	.14	.71	.28	.85	.42	30.00	.57	.14	4.2	8.5	2.7	7.0	71.2
12	.564	.13	.69	.25	.82	.38	29.95	.51	.07	3.8	7.6	1.4	5.2	69.1
13	.556	.11	.67	.23	.78	.34	.90	.45	7.01	3.4	6.8	40.1	3.5	6.9
14	.549	.10	.65	.20	.75	.29	.85	.39	6.94	2.9	5.9	38.8	1.8	4.7
53 15	18.542	37.08	55.63	74.17	92.71	111.25	129.79	148.34	166.88	1112.5	2225.0	3337.5	4450.1	5562.6
16	.535	.07	.60	.14	.67	.21	.74	.28	.81	2.1	4.1	6.2	48.3	60.4
17	.528	.06	.58	.11	.64	.17	.69	.22	.75	1.7	3.3	5.0	6.6	58.3
18	.520	.04	.56	.08	.60	.12	.64	.16	.68	1.2	2.4	3.7	4.9	6.1
19	.513	.03	.54	.05	.57	.08	.59	.10	.62	0.8	1.6	2.4	3.1	3.9
53 20	18.506	37.01	55.52	74.02	92.53	111.04	129.54	148.05	166.55	1110.4	2220.7	3331.1	4441.4	5551.8
21	.499	.00	.50	3.99	.49	0.99	.49	7.99	.49	09.9	19.8	29.8	39.7	49.6
22	.491	6.98	.47	.97	.46	.95	.44	.93	.42	9.5	9.0	8.5	8.0	7.4
23	.484	.97	.45	.94	.42	.91	.39	.87	.36	9.1	8.1	7.2	6.2	5.3
24	.477	.95	.43	.91	.39	.86	.34	.82	.29	8.6	7.3	5.9	4.5	3.1
53 25	18.470	36.94	55.41	73.88	92.35	110.82	129.29	147.76	166.23	1108.2	2216.4	3324.6	4432.8	5540.9
26	.463	.93	.39	.85	.31	.78	.24	.70	.16	7.8	5.5	3.3	31.0	38.8
27	.455	.91	.37	.82	.28	.73	.19	.64	.10	7.3	4.6	2.0	29.3	6.6
28	.448	.90	.34	.79	.24	.69	.14	.59	6.03	6.9	3.8	20.7	7.6	4.4
29	.441	.88	.32	.76	.21	.65	.09	.53	5.97	6.5	2.9	19.4	5.8	2.3
53 30	18.434	36.87	55.30	73.73	92.17	110.60	129.04	147.47	165.90	1106.0	2212.0	3318.1	4424.1	5530.1
31	.426	.85	.28	.70	.13	.56	8.99	.41	.84	5.6	1.2	6.8	2.3	27.9
32	.419	.84	.26	.68	.10	.52	.94	.35	.77	5.2	10.3	5.5	20.6	5.8
33	.412	.82	.24	.65	.06	.47	.89	.30	.71	4.7	09.4	4.2	18.9	3.6
34	.405	.81	.21	.62	2.03	.43	.84	.24	.64	4.3	8.6	2.9	7.1	21.4
53 35	18.398	36.80	55.19	73.59	91.99	110.39	128.78	147.18	165.58	1103.9	2207.7	3311.6	4415.4	5519.3
36	.390	.78	.17	.56	.95	.34	.73	.12	.51	3.4	6.8	10.2	3.7	7.1
37	.383	.77	.15	.53	.92	.30	.68	.06	.45	3.0	6.0	08.9	1.9	4.9
38	.376	.75	.13	.50	.88	.25	.63	7.01	.38	2.5	5.1	7.6	10.2	2.7
39	.369	.74	.11	.48	.85	.21	.58	6.95	.32	2.1	4.3	6.3	08.5	10.6
53 40	18.361	36.72	55.08	73.45	91.81	110.17	128.53	146.89	165.25	1101.7	2203.4	3305.0	4406.7	5508.4
41	.354	.71	.06	.42	.77	.12	.48	.83	.19	1.2	2.5	3.7	5.0	6.2
42	.347	.69	.04	.39	.74	.08	.43	.77	.12	0.8	1.6	2.4	3.2	4.0
43	.340	.68	.02	.36	.70	10.04	.38	.72	5.06	100.4	200.8	301.1	401.5	501.9
44	.332	.66	5.00	.33	.66	09.99	.33	.66	4.99	099.9	199.9	299.8	399.8	499.7
53 45	18.325	36.65	54.97	73.30	91.63	109.95	128.28	146.60	164.93	1099.5	2199.0	3298.5	4398.0	5497.5
46	.318	.64	.95	.27	.59	.91	.22	.54	.86	9.1	8.1	7.2	6.3	5.3
47	.311	.62	.93	.24	.55	.86	.17	.48	.80	8.6	7.3	5.9	4.5	3.2
48	.303	.61	.91	.21	.51	.82	.12	.43	.73	8.2	6.4	4.6	2.8	91.0
49	.296	.59	.89	.19	.48	.78	.07	.37	.67	7.8	5.6	3.3	1.1	88.8
53 50	18.289	36.58	54.87	73.16	91.44	109.73	128.02	146.31	164.60	1097.3	2194.7	3292.0	4389.3	5486.6
51	.282	.56	.85	.13	.40	.69	7.97	.25	.53	6.9	3.8	90.7	7.6	4.5
52	.274	.55	.82	.10	.37	.65	.92	.19	.47	6.5	2.9	89.4	5.8	2.3
53	.267	.53	.80	.07	.33	.60	.87	.14	.40	6.0	2.1	8.1	4.1	80.1
54	.260	.52	.78	.04	.30	.56	.82	.08	.34	5.6	1.2	6.7	2.3	77.9
53 55	18.252	36.50	54.76	73.01	91.26	109.51	127.76	146.02	164.27	1095.1	2190.3	3285.4	4380.6	5475.7
56	.245	.49	.74	2.98	.22	.47	.71	5.96	.21	4.7	89.4	4.1	78.8	3.6
57	.238	.48	.71	.95	.19	.43	.66	.90	.14	4.3	8.5	2.8	7.1	71.4
58	.231	.46	.69	.92	.15	.38	.61	.85	.07	3.8	7.7	1.5	5.4	69.2
59	.223	.45	.67	.89	.12	.34	.56	.79	4.01	3.4	6.8	80.2	3.6	7.0
53 60	18.216	36.43	54.65	72.86	91.08	109.30	127.51	145.73	163.94	1093.0	2185.9	3278.9	4371.9	5464.8

Lat.	Latitude 53° to 54°—Meridional arcs.						Latitude 53°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 53° 30'		Value of 1'	Continuous sums of minutes from latitude 53° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
53 00	30.913			1854.78			0 1	1 119.0	0.1
1	3	1	30.92	.79	1	1 854.8	0 2	2 238.0	0.5
2	3	2	61.83	.80	2	3 709.6	0 3	3 357.0	1.2
3	3	3	92.75	.80	3	5 564.4	0 4	4 476.0	2.1
4	3	4	123.66	.81	4	7 419.2	0 5	5 595.0	3.3
53 05	30.914	5	154.58	1854.81	5	9 274.0	0 6	6 714.0	4.7
6	4	6	185.49	.82	6	11 128.8	0 7	7 832.9	6.4
7	4	7	216.41	.82	7	12 983.6	0 8	8 951.9	8.3
8	4	8	247.33	.83	8	14 838.5	0 9	10 070.9	10.5
9	4	9	278.24	.83	9	16 693.3			
53 10	30.914	10	309.16	1854.84	10	18 548.1	0 10	11 189.9	13.0
11	4	11	340.07	.84	11	20 403.0	0 15	16 784.9	29.2
12	4	12	370.99	.85	12	22 257.8	0 20	22 379.8	52.0
13	4	13	401.90	.85	13	24 112.7	0 25	27 974.7	81.2
14	4	14	432.82	.86	14	25 967.5	0 30	33 569.5	117.0
53 15	30.914	15	463.74	1854.86	15	27 822.4	0 35	39 164.3	159.2
16	4	16	494.65	.87	16	29 677.2	0 40	44 759.1	208.0
17	5	17	525.57	.87	17	31 532.1	0 45	50 353.8	263.2
18	5	18	556.48	.88	18	33 387.0	0 50	55 948.4	325.0
19	5	19	587.40	.89	19	35 241.9	0 55	61 542.9	393.2
53 20	30.915	20	618.31	1854.89	20	37 096.8	1 00	67 137.4	467.9
21	5	21	649.23	.90	21	38 951.7	1 05	72 731.7	549.2
22	5	22	680.15	.90	22	40 806.6	1 10	78 326.0	636.9
23	5	23	711.06	.91	23	42 661.5	1 15	83 920.2	731.1
24	5	24	741.98	.91	24	44 516.4	1 20	89 514.2	831.8
53 25	30.915	25	772.89	1854.92	25	46 371.3	1 25	95 108.2	939.1
26	5	26	803.81	.92	26	48 226.2	1 30	100 702.0	1 052.8
27	5	27	834.72	.93	27	50 081.1	1 35	106 295.7	1 173.0
28	6	28	865.64	.93	28	51 936.1	1 40	111 889.2	1 299.7
29	6	29	896.56	.94	29	53 791.0	1 45	117 482.6	1 432.9
53 30	30.916	30	927.47	1854.94	30	55 645.9	1 50	123 075.8	1 572.6
31	6	31	958.39	.95	31	57 500.9	1 55	128 668.9	1 718.9
32	6	32	989.30	.95	32	59 355.8	2 00	134 262	1 872
33	6	33	1 020.22	.96	33	61 210.8	2 05	140 856.1	2 032.2
34	6	34	1 051.13	.96	34	63 065.8	2 10	147 450.3	2 197.5
53 35	30.916	35	1 082.05	1854.97	35	64 920.7	2 15	154 044.5	2 372.8
36	6	36	1 112.97	.97	36	66 775.7	2 20	160 638.7	2 558.1
37	6	37	1 143.88	.98	37	68 630.7	2 25	167 232.9	2 753.4
38	6	38	1 174.80	.99	38	70 485.6	2 30	173 827.1	2 958.7
39	7	39	1 205.71	4.99	39	72 340.6	2 35	180 421.3	3 174.0
53 40	30.917	40	1 236.63	1855.00	40	74 195.6	2 40	187 015.5	3 399.3
41	7	41	1 267.54	.00	41	76 050.6	2 45	193 609.7	3 634.6
42	7	42	1 298.46	.01	42	77 905.6	2 50	200 203.9	3 879.9
43	7	43	1 329.38	.01	43	79 760.6	2 55	206 798.1	4 135.2
44	7	44	1 360.29	.02	44	81 615.7	2 60	213 392.3	4 400.5
53 45	30.917	45	1 391.21	1855.02	45	83 470.7	2 65	220 986.5	4 675.8
46	7	46	1 422.12	.03	46	85 325.7	2 70	228 580.7	4 961.1
47	7	47	1 453.04	.03	47	87 180.7	2 75	236 174.9	5 256.4
48	7	48	1 483.95	.04	48	89 035.8	2 80	243 769.1	5 561.7
49	7	49	1 514.87	.04	49	90 890.8	2 85	251 363.3	5 877.0
53 50	30.917	50	1 545.79	1855.05	50	92 745.8	2 90	258 957.5	6 192.3
51	8	51	1 576.70	.05	51	94 600.9	2 95	266 551.7	6 517.6
52	8	52	1 607.62	.06	52	96 455.9	3 00	274 145.9	6 852.9
53	8	53	1 638.53	.06	53	98 311.0	3 05	281 740.1	7 198.2
54	8	54	1 669.45	.07	54	100 166.1	3 10	289 334.3	7 553.5
53 55	30.918	55	1 700.36	1855.07	55	102 021.1	3 15	296 928.5	7 918.8
56	8	56	1 731.28	.08	56	103 876.2	3 20	304 522.7	8 294.1
57	8	57	1 762.20	.08	57	105 731.3	3 25	312 116.9	8 679.4
58	8	58	1 793.11	.09	58	107 586.4	3 30	319 711.1	9 074.7
59	8	59	1 824.03	.10	59	109 441.5	3 35	327 305.3	9 480.0
53 60	30.918	60	1 854.94	1855.10	60	111 296.6	3 40	334 899.5	9 895.3

Latitude 54° to 55°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
54 00	18.216	36.43	54.65	72.86	91.08	109.30	127.51	145.73	163.94	1093.0	2185.9	3278.9	4371.9	5464.8
1	.209	.42	.63	.83	.04	.25	.46	.67	.88	2.5	5.0	7.6	10.1	12.7
2	.202	.40	.61	.81	1.01	.21	.41	.61	.81	2.1	4.2	6.3	8.4	10.5
3	.194	.39	.58	.78	0.97	.17	.36	.55	.75	1.7	3.3	5.0	6.6	8.3
4	.187	.37	.56	.75	.94	.12	.31	.50	.68	1.2	2.5	3.7	4.9	6.1
54 05	18.180	36.36	54.54	72.72	90.90	109.08	127.25	145.44	163.61	1090.8	2181.6	3272.3	4363.1	5453.9
6	.172	.34	.52	.69	.86	9.03	.20	.38	.55	90.3	80.7	71.0	61.4	51.7
7	.165	.33	.50	.66	.83	8.99	.15	.32	.48	89.9	79.8	69.7	59.6	49.5
8	.158	.32	.47	.63	.79	.95	.10	.26	.42	89.5	79.0	68.4	57.9	47.4
9	.151	.30	.45	.60	.76	.90	.05	.20	.35	89.0	78.1	67.1	56.1	45.2
54 10	18.143	36.29	54.43	72.57	90.72	108.86	127.00	145.15	163.29	1088.6	2177.2	3265.8	4354.4	5443.0
11	.136	.27	.41	.54	.68	.82	6.95	.09	.22	8.2	6.3	4.5	2.6	40.8
12	.129	.26	.39	.51	.65	.77	.90	5.03	.16	7.7	5.4	3.2	50.9	38.6
13	.121	.24	.36	.49	.61	.73	.85	4.97	.09	7.3	4.6	1.8	49.1	6.4
14	.114	.23	.34	.46	.57	.68	.80	.91	3.03	6.8	3.7	60.5	7.4	4.2
54 15	18.107	36.21	54.32	72.43	90.54	108.64	126.74	144.85	162.96	1086.4	2172.8	3259.2	4345.6	5432.0
16	.099	.20	.30	.40	.50	.60	.69	.80	.89	6.0	1.9	7.9	3.9	29.8
17	.092	.18	.28	.37	.46	.55	.64	.74	.83	5.5	1.0	6.6	2.1	7.7
18	.085	.17	.25	.34	.42	.51	.59	.68	.76	5.1	70.2	5.3	40.4	5.5
19	.078	.16	.23	.31	.39	.47	.54	.62	.70	4.7	69.3	4.0	38.6	3.3
54 20	18.070	36.14	54.21	72.28	90.35	108.42	126.49	144.56	162.63	1084.2	2168.4	3252.7	4336.9	5421.1
21	.063	.13	.19	.25	.31	.38	.44	.50	.56	3.8	7.5	1.3	5.1	18.9
22	.056	.11	.17	.22	.28	.33	.39	.45	.50	3.3	6.7	50.0	3.4	6.7
23	.048	.10	.14	.19	.24	.29	.34	.39	.43	2.9	5.8	48.7	31.6	4.5
24	.041	.08	.12	.16	.21	.25	.29	.33	.37	2.5	4.9	7.4	29.8	2.3
54 25	18.034	36.07	54.10	72.13	90.17	108.20	126.23	144.27	162.30	1082.0	2164.0	3246.1	4328.1	5410.1
26	.026	.05	.08	.10	.13	.16	.18	.21	.23	1.6	3.1	4.8	6.3	07.9
27	.019	.04	.06	.08	.10	.11	.13	.15	.17	1.1	2.3	3.4	4.6	5.7
28	.012	.02	.03	.05	.06	.07	.08	.09	.10	0.7	1.4	2.1	2.8	3.5
29	.004	6.01	4.01	2.02	90.03	8.03	6.03	4.04	2.04	80.3	60.6	40.8	21.1	401.3
54 30	17.997	35.99	53.99	71.99	89.99	107.98	125.98	143.98	161.97	1079.8	2159.7	3239.5	4319.3	5399.1
31	.990	.98	.97	.96	.95	.94	.93	.92	.91	9.4	8.8	8.2	7.6	6.9
32	.982	.96	.95	.93	.91	.89	.88	.86	.84	8.9	7.9	6.8	5.8	4.7
33	.975	.95	.92	.90	.88	.85	.83	.80	.78	8.5	7.0	5.5	4.0	2.5
34	.968	.94	.90	.87	.84	.81	.78	.74	.71	8.1	6.2	4.2	2.3	90.3
54 35	17.960	35.92	53.88	71.84	89.80	107.76	125.72	143.68	161.65	1077.6	2155.3	3232.9	4310.5	5388.1
36	.953	.91	.86	.81	.77	.72	.67	.63	.58	7.2	4.4	1.6	08.8	5.9
37	.946	.89	.84	.78	.73	.67	.62	.57	.51	6.7	3.5	30.2	7.0	3.7
38	.938	.88	.81	.75	.69	.63	.57	.51	.45	6.3	2.6	28.9	5.2	81.5
39	.931	.86	.79	.73	.66	.59	.52	.45	.38	5.9	1.8	7.6	3.5	79.4
54 40	17.924	35.85	53.77	71.70	89.62	107.54	125.47	143.39	161.32	1075.4	2150.9	3226.3	4301.7	5377.2
41	.916	.83	.75	.67	.58	.50	.42	.33	.25	5.0	50.0	5.0	300.0	4.9
42	.909	.82	.73	.64	.54	.45	.36	.27	.18	4.5	49.1	3.6	298.2	2.7
43	.902	.80	.70	.61	.51	.41	.31	.21	.12	4.1	8.2	2.3	6.4	70.5
44	.894	.79	.68	.58	.47	.37	.26	.16	1.05	3.7	7.4	21.0	4.7	68.3
54 45	17.887	35.77	53.66	71.55	89.43	107.32	125.21	143.10	160.99	1073.2	2146.5	3219.7	4292.9	5366.1
46	.880	.76	.64	.52	.40	.28	.16	3.04	.92	2.8	5.6	8.4	91.1	3.9
47	.872	.74	.62	.49	.36	.23	.11	2.98	.85	2.3	4.7	7.0	89.4	61.7
48	.865	.73	.59	.46	.32	.19	.05	.92	.78	1.9	3.8	5.7	7.6	59.5
49	.858	.72	.57	.43	.29	.15	5.00	.86	.72	1.5	2.9	4.4	5.9	7.3
54 50	17.850	35.70	53.55	71.40	89.25	107.10	124.95	142.80	160.65	1071.0	2142.0	3213.1	4284.1	5355.1
51	.843	.69	.53	.37	.21	.06	.90	.74	.58	0.6	1.1	1.7	2.3	2.9
52	.836	.67	.51	.34	.18	7.01	.85	.69	.52	70.1	40.3	10.4	80.6	50.7
53	.828	.66	.48	.31	.14	6.97	.80	.63	.45	69.7	39.4	09.1	78.8	48.5
54	.821	.64	.46	.28	.10	.93	.75	.57	.39	9.3	8.5	7.8	7.0	6.3
54 55	17.814	35.63	53.44	71.25	89.07	106.88	124.69	142.51	160.32	1068.8	2137.6	3206.4	4275.3	5344.1
56	.806	.61	.42	.22	9.03	.84	.64	.45	.25	8.4	6.7	5.1	3.5	41.9
57	.799	.60	.40	.19	8.99	.79	.59	.39	.19	7.9	5.8	3.8	1.7	39.7
58	.791	.58	.37	.17	.95	.75	.54	.33	.12	7.5	5.0	2.5	70.0	7.4
59	.784	.57	.35	.14	.92	.70	.49	.27	60.06	7.0	4.1	201.1	68.2	5.2
54 60	17.777	35.55	53.33	71.11	88.88	106.66	124.44	142.21	159.99	1066.6	2133.2	3199.8	4266.4	5333.0

Lat.	Latitude 54° to 55°—Meridional arcs.						Latitude 54°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 54° 30'		Value of 1'	Continuous sums of minutes from latitude 54° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
54 00	30.918			1855.10			0 1	1 093.0	0.1
1	8	1	30.92	.11	1	1 855.1	1	2 185.9	0.5
2	9	2	61.84	.11	2	3 710.2	2	3 278.9	1.2
3	9	3	92.76	.12	3	5 565.3	3	4 371.9	2.1
4	9	4	123.68	.12	4	7 420.4	4	5 464.8	3.2
54 05	30.919	5	154.60	1855.13	5	9 275.6	5	6 557.8	4.6
6	9	6	185.53	.13	6	11 130.7	6	7 650.8	6.3
7	9	7	216.45	.14	7	12 985.8	7	8 743.7	8.2
8	9	8	247.37	.14	8	14 841.0	8	9 836.7	10.4
9	9	9	278.29	.15	9	16 696.1	9		
54 10	30.919	10	309.21	1855.15	10	18 551.2	10	10 929.7	12.9
11	9	1	340.13	.16	1	20 406.4	15	16 394.5	28.9
12	9	2	371.05	.16	2	22 261.6	20	21 859.3	51.4
13	19	3	401.97	.17	3	24 116.7	25	27 324.0	80.4
14	20	4	432.89	.17	4	25 971.9	30	32 788.8	115.7
54 15	30.920	15	463.81	1855.18	15	27 827.1	35	38 253.4	157.5
16	0	6	494.74	.18	6	29 682.3	40	43 718.0	205.8
17	0	7	525.66	.19	7	31 537.4	45	49 182.6	260.4
18	0	8	556.58	.19	8	33 392.6	50	54 647.1	321.5
19	0	9	587.50	.20	9	35 247.8	55	60 111.5	389.0
54 20	30.920	20	618.42	1855.21	20	37 103.0	1 00	65 575.9	463.0
21	0	1	649.34	.21	1	38 958.2	05	71 040.1	543.4
22	0	2	680.26	.22	2	40 813.5	10	76 504.3	630.2
23	0	3	711.18	.22	3	42 668.7	15	81 968.3	723.4
24	0	4	742.10	.23	4	44 523.9	20	87 432.3	823.1
54 25	30.921	25	773.02	1855.23	25	46 379.1	1 25	92 896.1	929.1
26	1	6	803.94	.24	6	48 234.4	30	98 359.8	1 041.7
27	1	7	834.87	.24	7	50 089.6	35	103 823.3	1 160.6
28	1	8	865.79	.25	8	51 944.8	40	109 286.7	1 286.0
29	1	9	896.71	.25	9	53 800.1	45	114 750.0	1 417.8
54 30	30.921	30	927.63	1855.26	30	55 655.3	1 50	120 213.1	1 556.0
31	1	1	958.55	.26	1	57 510.6	55	125 676.0	1 700.7
32	1	2	989.47	.27	2	59 365.9	2 00	131 139	1 852
33	1	3	1 020.39	.27	3	61 221.2	3 00	196 675	4 166
34	1	4	1 051.31	.28	4	63 076.4	4 00	262 173	7 406
54 35	30.921	35	1 082.23	1855.28	35	64 931.7	5 00	327 618	11 570
36	1	6	1 113.15	.29	6	66 787.0	6 00	392 998	16 657
37	2	7	1 144.08	.29	7	68 642.3	7 00	458 300	22 668
38	2	8	1 175.00	.30	8	70 497.6	8 00	523 510	29 599
39	2	9	1 205.92	.30	9	72 352.9	9 00	588 616	37 451
54 40	30.922	40	1 236.84	1855.31	40	74 208.2	10 00	653 604	46 221
41	2	1	1 267.76	.31	1	76 063.5	11 00	718 462	55 908
42	2	2	1 298.68	.32	2	77 918.8	12 00	783 177	66 510
43	2	3	1 329.60	.32	3	79 774.1	13 00	847 736	78 024
44	2	4	1 360.52	.33	4	81 629.5	14 00	912 125	90 449
54 45	30.922	45	1 391.44	1855.34	45	83 484.8	15 00	976 333	103 782
46	2	6	1 422.36	.34	6	85 340.1	16 00	1 040 347	118 020
47	2	7	1 453.28	.35	7	87 195.5	17 00	1 104 152	133 161
48	3	8	1 484.21	.35	8	89 050.8	18 00	1 167 738	149 200
49	3	9	1 515.13	.36	9	90 906.2	19 00	1 231 091	166 136
54 50	30.923	50	1 546.05	1855.36	50	92 761.5	20 00	1 294 198	183 965
51	3	1	1 576.97	.37	1	94 616.9	21 00	1 357 048	202 683
52	3	2	1 607.89	.37	2	96 472.3	22 00	1 419 627	222 287
53	3	3	1 638.81	.38	3	98 327.6	23 00	1 481 922	242 772
54	3	4	1 669.73	.38	4	100 183.0	24 00	1 543 923	264 135
54 55	30.923	55	1 700.65	1855.39	55	102 038.4	25 00	1 605 615	286 371
56	3	6	1 731.57	.39	6	103 893.8	26 00	1 666 988	309 476
57	3	7	1 762.49	.40	7	105 749.2	27 00	1 728 028	333 445
58	3	8	1 793.42	.40	8	107 604.6	28 00	1 788 723	358 274
59	3	9	1 824.34	.41	9	109 460.0	29 00	1 849 062	383 957
54 60	30.924	60	1 855.26	1855.41	60	111 315.4	30 00	1 909 033	410 490

Latitude 55° to 56°—Area of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
55 00	17.777	35.55	53.33	71.11	88.88	106.66	124.44	142.21	159.99	1066.6	2133.2	3199.8	4266.4	5333.0
1	.769	.54	.31	.08	.84	.62	.39	.16	.92	6.2	2.3	8.5	4.7	30.8
2	.762	.52	.29	.05	.81	.57	.34	.10	.86	5.7	1.4	7.2	2.9	28.6
3	.755	.51	.26	1.02	.77	.53	.28	2.04	.79	5.3	30.6	5.8	61.1	6.4
4	.747	.49	.24	0.99	.74	.48	.23	1.98	.73	4.8	29.7	4.5	59.3	4.2
55 05	17.740	35.48	53.22	70.96	88.70	106.44	124.18	141.92	159.66	1064.4	2128.8	3193.2	4257.6	5322.0
6	.733	.47	.20	.93	.66	.40	.13	.86	.59	4.0	7.9	1.9	5.8	19.8
7	.725	.45	.18	.90	.63	.35	.08	.80	.53	3.5	7.0	90.5	4.0	7.5
8	.718	.44	.15	.87	.59	.31	4.02	.74	.46	3.1	6.2	89.2	2.3	5.3
9	.710	.42	.13	.84	.56	.26	3.97	.68	.40	2.6	5.3	7.9	50.5	3.1
55 10	17.703	35.41	53.11	70.81	88.52	106.22	123.92	141.62	159.33	1062.2	2124.4	3186.5	4248.7	5310.9
11	.696	.39	.09	.78	.48	.17	.87	.56	.26	1.7	3.5	5.2	6.9	08.7
12	.688	.38	.07	.75	.45	.13	.82	.51	.20	1.3	2.6	3.9	5.2	6.5
13	.681	.36	.04	.72	.41	.08	.76	.45	.13	0.8	1.7	2.5	3.4	4.2
14	.673	.35	.02	.69	.37	.04	.71	.39	.06	0.4	20.8	81.2	1.6	302.0
55 15	17.666	35.33	53.00	70.66	88.33	106.00	123.66	141.33	159.00	1060.0	2119.9	3179.9	4239.8	5299.8
16	.659	.32	2.98	.63	.30	5.95	.61	.27	8.93	59.5	9.0	8.6	8.1	7.6
17	.651	.30	.95	.60	.26	.91	.56	.21	.86	9.1	8.1	7.2	6.3	5.4
18	.644	.29	.93	.58	.22	.86	.50	.15	.79	8.6	7.3	5.9	4.5	3.2
19	.636	.27	.91	.55	.19	.82	.45	.09	.73	8.2	6.4	4.6	2.8	90.9
55 20	17.629	35.26	52.89	70.52	88.15	105.77	123.40	141.03	158.66	1057.7	2115.5	3173.2	4231.0	5288.7
21	.622	.24	.87	.49	.11	.73	.35	0.97	.59	7.3	4.6	1.9	29.2	6.5
22	.614	.23	.84	.46	.08	.69	.30	.91	.53	6.9	3.7	70.6	7.4	4.3
23	.607	.21	.82	.43	.04	.64	.25	.85	.46	6.4	2.8	69.2	5.6	82.1
24	.599	.20	.80	.40	8.00	.60	.20	.80	.40	6.0	1.9	7.9	3.9	79.8
55 25	17.592	35.18	52.78	70.37	87.97	105.55	123.14	140.74	158.33	1055.5	2111.0	3166.6	4222.1	5277.6
26	.585	.17	.75	.34	.93	.51	.09	.68	.26	5.1	10.1	5.2	20.3	5.4
27	.577	.15	.73	.31	.89	.46	3.04	.62	.20	4.6	09.2	3.9	18.5	3.2
28	.570	.14	.71	.28	.85	.42	2.99	.56	.13	4.2	8.4	2.6	6.8	70.9
29	.562	.12	.69	.25	.82	.37	.94	.50	.06	3.7	7.5	61.2	5.0	68.7
55 30	.555	35.11	52.67	70.22	87.78	105.33	122.89	140.44	158.00	1053.3	2106.6	3159.9	4213.2	5266.5
31	.548	.10	.64	.19	.74	.29	.84	.38	7.93	2.9	5.7	8.6	11.4	4.3
32	.540	.08	.62	.16	.70	.24	.79	.32	.86	2.4	4.8	7.2	09.6	62.1
33	.533	.07	.60	.13	.67	.20	.73	.26	.80	2.0	3.9	5.9	7.9	59.8
34	.525	.05	.58	.10	.63	.15	.68	.20	.73	1.5	3.0	4.6	6.1	7.6
55 35	17.518	35.04	52.55	70.07	87.59	105.11	122.63	140.14	157.66	1051.1	2102.1	3153.2	4204.3	5255.4
36	.510	.02	.53	.04	.55	.06	.58	.08	.60	0.6	1.2	1.9	2.5	3.1
37	.503	5.01	.51	70.01	.51	5.02	.53	40.02	.53	50.2	100.3	50.6	200.7	50.9
38	.496	4.99	.49	69.98	.48	4.97	.47	39.97	.46	49.7	099.5	49.2	199.0	48.7
39	.488	.98	.46	.95	.44	.93	.42	.91	.40	9.3	8.6	7.9	7.2	6.5
55 40	17.481	34.96	52.44	69.92	87.40	104.89	122.37	139.85	157.33	1048.9	2097.7	3146.6	4195.4	5244.3
41	.473	.95	.42	.89	.36	.84	.32	.79	.26	8.4	6.8	5.2	3.6	42.0
42	.466	.93	.40	.86	.33	.80	.27	.73	.20	8.0	5.9	3.9	1.8	39.8
43	.459	.92	.38	.83	.29	.75	.21	.67	.13	7.5	5.0	2.5	90.0	7.6
44	.451	.90	.35	.80	.25	.71	.16	.61	.06	7.1	4.1	41.2	88.3	5.3
55 45	17.444	34.89	52.33	69.77	87.21	104.66	122.11	139.55	157.00	1046.6	2093.2	3139.9	4186.5	5233.1
46	.436	.87	.31	.74	.18	.62	.06	.49	6.93	6.2	2.3	8.5	4.7	30.9
47	.429	.86	.29	.71	.14	.57	2.01	.43	.86	5.7	1.4	7.2	2.9	28.6
48	.421	.84	.26	.69	.10	.53	1.95	.37	.79	5.3	90.6	5.8	81.1	6.4
49	.414	.83	.24	.66	.07	.48	.90	.31	.73	4.8	89.7	4.5	79.3	4.2
55 50	17.406	34.81	52.22	69.63	87.03	104.44	121.85	139.25	156.66	1044.4	2088.8	3133.2	4177.6	5221.9
51	.399	.80	.20	.60	6.99	.39	.80	.19	.59	3.9	7.9	1.8	5.8	19.7
52	.392	.78	.18	.57	.96	.35	.74	.13	.53	3.5	7.0	30.5	4.0	7.5
53	.384	.77	.15	.54	.92	.30	.69	.07	.46	3.0	6.1	29.1	2.2	5.2
54	.377	.75	.13	.51	.88	.26	.64	9.01	.39	2.6	5.2	7.8	70.4	3.0
55 55	17.369	34.74	52.11	69.48	86.85	104.22	121.58	138.95	156.33	1042.2	2084.3	3126.5	4168.6	5210.8
56	.362	.72	.09	.45	.81	.17	.53	.89	.26	1.7	3.4	5.1	6.8	08.5
57	.354	.71	.06	.42	.77	.13	.48	.83	.19	1.3	2.5	3.8	5.0	6.3
58	.347	.69	.04	.39	.73	.08	.43	.77	.12	0.8	1.6	2.4	3.2	4.1
59	.339	.68	.02	.36	.70	4.04	.37	.72	6.06	40.4	80.7	21.1	61.5	201.8
55 60	17.332	34.66	52.00	69.33	86.66	103.99	121.32	138.66	155.99	1039.9	2079.8	3119.8	4159.7	5199.6

Lat.	Latitude 55° to 56°—Meridional arcs.						Latitude 55°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 55° 30'		Value of 1'	Continuous sums of minutes from latitude 55° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
55 00	30.924			1855.41			0 1	1 066.6	0.1
1	4	1	30.93	.42	1	1 855.4	0 2	2 133.2	0.5
2	4	2	61.85	.42	2	3 710.8	3	3 199.8	1.1
3	4	3	92.78	.43	3	5 566.3	4	4 266.4	2.0
4	4	4	123.70	.43	4	7 421.7			
55 05	30.924	5	154.63	1855.44	5	9 277.1	0 5	5 333.0	3.2
6	4	6	185.56	.44	6	11 132.6	6	6 399.6	4.6
7	4	7	216.48	.45	7	12 988.0	7	7 466.2	6.2
8	4	8	247.41	.45	8	14 843.5	8	8 532.8	8.1
9	4	9	278.34	.46	9	16 698.9	9	9 599.4	10.3
55 10	30.924	10	309.26	1855.46	10	18 554.4	0 10	10 666.1	12.7
11	4	11	340.19	.47	11	20 409.9	15	15 999.1	28.6
12	5	2	371.11	.47	2	22 265.3	20	21 332.1	50.8
13	5	3	402.04	.48	3	24 120.8	25	26 665.0	79.4
14	5	4	432.97	.49	4	25 976.3	30	31 997.9	114.4
55 15	30.925	15	463.89	1855.49	15	27 831.8	0 35	37 330.8	155.7
16	5	6	494.82	.50	6	29 687.3	40	42 663.6	203.3
17	5	7	525.74	.50	7	31 542.8	45	47 996.4	257.3
18	5	8	556.67	.51	8	33 398.3	50	53 329.1	317.7
19	5	9	587.60	.51	9	35 253.8	55	58 661.7	384.4
55 20	30.925	20	618.52	1855.52	20	37 109.3	1 00	63 994.2	457.5
21	5	1	649.45	.52	1	38 964.8	05	69 326.7	536.9
22	5	2	680.37	.53	2	40 820.4	10	74 659.0	622.7
23	6	3	711.30	.53	3	42 675.9	15	79 991.3	714.8
24	6	4	742.23	.54	4	44 531.4	20	85 323.4	813.3
55 25	30.926	25	773.15	1855.54	25	46 387.0	1 25	90 655.4	918.1
26	6	5	804.08	.55	5	48 242.5	30	95 987.3	1 029.3
27	6	6	835.01	.55	6	50 098.1	35	101 319.0	1 146.8
28	6	7	865.93	.56	7	51 953.6	40	106 650.6	1 270.7
29	6	8	896.86	.56	8	53 809.2	45	111 982.1	1 400.9
55 30	30.926	30	927.78	1855.57	30	55 664.7	1 50	117 313.3	1 537.5
31	6	1	958.71	.57	1	57 520.3	55	122 644.5	1 680.5
32	6	2	989.64	.58	2	59 375.9	2 00	127 975	1 830
33	6	3	1 020.56	.58	3	61 231.4	3 00	191 930	4 117
34	6	4	1 051.49	.59	4	63 087.0	4 00	255 846	7 318
55 35	30.927	35	1 082.41	1855.59	35	64 942.6	5 00	319 710	11 432
36	7	5	1 113.34	.60	5	66 798.2	6 00	383 508	16 459
37	7	6	1 144.27	.60	6	68 653.8	7 00	447 228	22 398
38	7	7	1 175.19	.61	7	70 509.4	8 00	510 856	29 246
39	7	8	1 206.12	.61	8	72 365.0	9 00	574 380	37 004
55 40	30.927	40	1 237.04	1855.62	40	74 220.7	10 00	637 786	45 670
41	7	1	1 267.97	.62	1	76 076.3	11 00	701 062	55 240
42	7	2	1 298.90	.63	2	77 931.9	12 00	764 195	65 715
43	7	3	1 329.82	.63	3	79 787.6	13 00	827 172	77 091
44	7	4	1 360.75	.64	4	81 643.2	14 00	889 980	89 366
55 45	30.927	45	1 391.68	1855.64	45	83 498.8	15 00	952 605	102 538
46	7	5	1 422.60	.65	5	85 354.5	16 00	1 015 036	116 604
47	8	6	1 453.53	.65	6	87 210.1	17 00	1 077 260	131 561
48	8	7	1 484.45	.66	7	89 065.8	18 00	1 139 263	147 406
49	8	8	1 515.38	.66	8	90 921.5	19 00	1 201 033	164 135
55 50	30.928	50	1 546.31	1855.67	50	92 777.1	20 00	1 262 558	181 747
51	8	1	1 577.23	.68	1	94 632.8	21 00	1 323 825	200 236
52	8	2	1 608.16	.68	2	96 488.4	22 00	1 384 821	219 599
53	8	3	1 639.08	.69	3	98 344.1	23 00	1 445 535	239 832
54	8	4	1 670.01	.69	4	100 199.8	24 00	1 505 952	260 931
55 55	30.928	55	1 700.94	1855.70	55	102 055.5	25 00	1 566 063	282 891
56	8	5	1 731.86	.70	5	103 911.2	26 00	1 625 853	305 709
57	8	6	1 762.79	.71	6	105 766.9	27 00	1 685 310	329 379
58	9	7	1 793.72	.71	7	107 622.6	28 00	1 744 423	353 396
59	9	8	1 824.64	.72	8	109 478.3	29 00	1 803 179	379 257
55 60	30.929	60	1 855.57	1855.72	60	111 334.0	30 00	1 861 567	405 454

Latitude 56° to 57°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
56 00	17.332	34.66	52.00	69.33	86.66	103.99	121.32	138.66	155.99	1039.9	2079.8	3119.8	4159.7	5199.6
1	.324	.65	1.97	.30	.62	.95	.27	.60	.92	9.5	8.9	8.4	7.9	7.3
2	.317	.63	.95	.27	.59	.90	.22	.54	.86	9.0	8.0	7.1	6.1	5.1
3	.310	.62	.93	.24	.55	.86	.16	.48	.79	8.6	7.2	5.7	4.3	2.9
4	.302	.60	.91	.21	.51	.81	.11	.42	.72	8.1	6.3	4.4	2.5	90.6
56 05	17.295	34.59	51.88	69.18	86.48	103.77	121.06	138.36	155.65	1037.7	2075.4	3113.0	4150.7	5188.4
6	.287	.57	.86	.15	.44	.72	1.01	.30	.59	7.2	4.5	1.7	48.9	6.1
7	.280	.56	.84	.12	.40	.68	0.96	.24	.52	6.8	3.6	10.3	7.1	3.9
8	.272	.54	.82	.09	.36	.63	.90	.18	.45	6.3	2.7	09.0	5.3	81.7
9	.265	.53	.79	.06	.33	.59	.85	.12	.38	5.9	1.8	7.7	3.5	79.4
56 10	17.257	34.51	51.77	69.03	86.29	103.54	120.80	138.06	155.32	1035.4	2070.9	3106.3	4141.7	5177.2
11	.250	.50	.75	9.00	.25	.50	.75	8.00	.25	5.0	70.0	5.0	40.0	4.9
12	.242	.48	.73	8.97	.21	.45	.70	7.94	.18	4.5	69.1	3.6	38.2	2.7
13	.235	.47	.70	.94	.18	.41	.64	.88	.11	4.1	8.2	2.3	6.4	70.4
14	.227	.45	.68	.91	.14	.36	.59	.82	5.05	3.6	7.3	100.9	4.6	68.2
56 15	17.220	34.44	51.66	68.88	86.10	103.32	120.54	137.76	154.98	1033.2	2066.4	3099.6	4132.8	5166.0
16	.212	.43	.64	.85	.06	.27	.49	.70	.91	2.7	5.5	8.2	31.0	3.7
17	.205	.41	.62	.82	6.02	.23	.44	.64	.84	2.3	4.6	6.9	29.2	61.5
18	.197	.40	.59	.79	5.99	.18	.38	.58	.78	1.8	3.7	5.5	7.4	59.2
19	.190	.38	.57	.76	.95	.14	.33	.52	.71	1.4	2.8	4.2	5.6	7.0
56 20	17.182	34.37	51.55	68.73	85.91	103.09	120.28	137.46	154.64	1030.9	2061.9	3092.8	4123.8	5154.7
21	.175	.35	.53	.70	.87	.05	.23	.40	.57	0.5	1.0	1.5	2.0	2.5
22	.167	.34	.50	.67	.84	3.00	.17	.34	.51	30.0	60.1	90.1	20.2	50.2
23	.160	.32	.48	.64	.80	2.96	.12	.28	.44	29.6	59.2	88.8	18.4	48.0
24	.152	.31	.46	.61	.76	.91	.07	.22	.37	9.1	8.3	7.4	6.6	5.7
56 25	17.145	34.29	51.43	68.58	85.73	102.87	120.01	137.16	154.31	1028.7	2057.4	3086.1	4114.8	5143.5
26	.137	.28	.41	.55	.69	.82	19.96	.10	.24	8.2	6.5	4.7	3.0	41.2
27	.130	.26	.39	.52	.65	.78	.91	7.04	.17	7.8	5.6	3.4	11.2	39.0
28	.123	.25	.37	.49	.61	.74	.86	6.98	.10	7.4	4.7	2.1	09.4	6.8
29	.115	.23	.34	.46	.58	.69	.80	.92	4.04	6.9	3.8	80.7	7.6	4.5
56 30	17.108	34.22	51.32	68.43	85.54	102.65	119.75	136.86	153.97	1026.5	2052.9	3079.4	4105.8	5132.3
31	.100	.20	.30	.40	.50	.60	.70	.80	.90	6.0	2.0	8.0	4.0	30.0
32	.092	.19	.28	.37	.46	.55	.65	.74	.83	5.5	1.1	6.6	2.2	27.7
33	.085	.17	.25	.34	.43	.51	.59	.68	.77	5.1	50.2	5.3	100.4	5.5
34	.077	.16	.23	.31	.39	.46	.54	.62	.70	4.6	49.3	3.9	098.6	3.2
56 35	17.070	34.14	51.21	68.28	85.35	102.42	119.49	136.56	153.63	1024.2	2048.4	3072.6	4096.8	5121.0
36	.062	.12	.19	.25	.31	.37	.44	.50	.56	3.7	7.5	71.2	5.0	18.7
37	.055	.11	.17	.22	.27	.33	.39	.44	.49	3.3	6.6	69.9	3.2	6.5
38	.047	.09	.14	.19	.24	.28	.33	.38	.43	2.8	5.7	8.5	91.4	4.2
39	.040	.08	.12	.16	.20	.24	.28	.32	.36	2.4	4.8	7.2	89.6	12.0
56 40	17.032	34.06	51.10	68.13	85.16	102.19	119.23	136.26	153.29	1021.9	2043.9	3065.8	4087.8	5109.7
41	.025	.05	.08	.10	.12	.15	.18	.20	.22	1.5	3.0	4.5	6.0	7.5
42	.017	.03	.05	.07	.09	.10	.12	.14	.15	1.0	2.1	3.1	4.2	5.2
43	.010	.02	.03	.04	.05	.06	.07	.08	.09	0.6	1.2	1.8	2.4	2.9
44	.002	4.00	1.01	8.01	5.01	2.01	9.02	6.02	3.02	20.1	40.3	60.4	80.6	100.7
56 45	16.995	33.99	50.98	67.98	84.98	101.97	118.96	135.96	152.95	1019.7	2039.4	3059.1	4078.7	5098.4
46	.987	.97	.96	.95	.94	.92	.91	.90	.88	9.2	8.5	7.7	6.9	6.2
47	.980	.96	.94	.92	.90	.88	.86	.84	.82	8.8	7.6	6.4	5.1	3.9
48	.972	.94	.92	.89	.86	.83	.81	.78	.75	8.3	6.7	5.0	3.3	91.7
49	.965	.93	.89	.86	.83	.79	.75	.72	.68	7.9	5.8	3.6	71.5	89.4
56 50	16.957	33.91	50.87	67.83	84.79	101.74	118.70	135.66	152.61	1017.4	2034.9	3052.3	4069.7	5087.2
51	.950	.90	.85	.80	.75	.70	.65	.60	.54	7.0	4.0	50.9	7.9	4.9
52	.942	.88	.83	.77	.71	.65	.59	.54	.48	6.5	3.1	49.6	6.1	2.6
53	.935	.87	.80	.74	.68	.61	.54	.48	.41	6.1	2.1	8.2	4.3	80.4
54	.927	.85	.78	.71	.64	.56	.49	.42	.34	5.6	1.2	6.9	2.5	78.1
56 55	16.919	33.84	50.76	67.68	84.60	101.52	118.43	135.36	152.27	1015.2	2030.3	3045.5	4060.7	5075.8
56	.912	.82	.74	.65	.56	.47	.38	.30	.21	4.7	29.4	4.1	58.9	3.6
57	.904	.81	.71	.62	.52	.43	.33	.24	.14	4.3	8.5	2.8	7.1	71.3
58	.897	.79	.69	.59	.49	.38	.28	.17	.07	3.8	7.6	1.4	5.2	69.1
59	.889	.78	.67	.56	.45	.34	.22	.11	2.01	3.4	6.7	40.1	3.4	6.8
56 60	16.882	33.76	50.65	67.53	84.41	101.29	118.17	135.05	151.94	1012.9	2025.8	3038.7	4051.6	5064.5

Lat.	Latitude 56° to 57°—Meridional arcs.						Latitude 56°—Co-ordinates of curvature.		
	Value of 1'	Sums of seconds for middle latitude 56° 30'		Value of 1'	Continuous sums of minutes from latitude 56° 00'		Longitude.	X	Y
° ' /	Meters.	"	Meters.	Meters.	'	Meters.	° ' /	Meters.	Meters.
56 00	30.929			1855.72			0 1	1 039.9	0.1
1	9	1	30.93	.73	1	1 855.7	0 2	2 079.8	0.5
2	9	2	61.86	.73	2	3 711.5	0 3	3 119.8	1.1
3	9	3	92.79	.74	3	5 567.2	0 4	4 159.7	2.0
4	9	4	123.72	.74	4	7 422.9	0 5	5 199.6	3.1
56 05	30.929	5	154.66	1855.75	5	9 278.7	0 6	6 239.5	4.5
6	9	6	185.59	.75	6	11 134.4	0 7	7 279.4	6.1
7	9	7	216.52	.76	7	12 990.2	0 8	8 319.3	8.0
8	9	8	247.45	.76	8	14 845.9	0 9	9 359.2	10.2
09	29	9	278.38	.77	9	16 701.7			
56 10	30.930	10	309.31	1855.77	10	18 557.5	0 10	10 399.2	12.5
11	0	1	340.24	.78	1	20 413.2	0 15	15 598.7	28.2
12	0	2	371.17	.78	2	22 269.0	0 20	20 798.3	50.2
13	0	3	402.11	.79	3	24 124.8	0 25	25 997.8	78.4
14	0	4	433.04	.79	4	25 980.6	0 30	31 197.3	112.9
56 15	30.930	15	463.97	1855.80	15	27 836.4	0 35	36 396.7	153.6
16	0	6	494.90	.80	6	29 692.2	0 40	41 596.0	200.6
17	0	7	525.83	.81	7	31 548.0	0 45	46 795.4	253.9
18	0	8	556.76	.81	8	33 403.8	0 50	51 994.6	313.5
19	0	9	587.69	.82	9	35 259.6	0 55	57 193.8	379.3
56 20	30.930	20	618.62	1855.82	20	37 115.4	1 00	62 392.9	451.4
21	0	1	649.56	.83	1	38 971.3	1 05	67 591.9	529.8
22	1	2	680.49	.83	2	40 827.1	1 10	72 790.8	614.4
23	1	3	711.42	.84	3	42 682.9	1 15	77 989.6	705.3
24	1	4	742.35	.84	4	44 538.8	1 20	83 188.2	802.5
56 25	30.931	25	773.28	1855.85	25	46 394.6	1 25	88 386.8	905.9
26	1	6	804.21	.85	6	48 250.5	1 30	93 585.2	1 015.6
27	1	7	835.14	.86	7	50 106.3	1 35	98 783.5	1 131.6
28	1	8	866.07	.86	8	51 962.2	1 40	103 981.7	1 253.8
29	1	9	897.01	.87	9	53 818.0	1 45	109 179.7	1 382.4
56 30	30.931	30	927.94	1855.87	30	55 673.9	1 50	114 377.5	1 517.1
31	1	1	958.87	.88	1	57 529.8	1 55	119 575.2	1 658.2
32	1	2	989.80	.88	2	59 385.7	2 00	124 773	1 806
33	1	3	1 020.73	.89	3	61 241.6	2 05	129 971	1 962
34	2	4	1 051.66	.89	4	63 097.5	2 10	135 169	2 124
56 35	30.932	35	1 082.59	1855.90	35	64 953.4	2 15	140 367	2 291
36	2	6	1 113.52	.90	6	66 809.3	2 20	145 565	2 464
37	2	7	1 144.46	.91	7	68 665.2	2 25	150 763	2 644
38	2	8	1 175.39	.91	8	70 521.1	2 30	155 961	2 829
39	2	9	1 206.32	.92	9	72 377.0	2 35	161 159	3 019
56 40	30.932	40	1 237.25	1855.92	40	74 232.9	2 40	166 357	3 214
41	2	1	1 268.18	.93	1	76 088.8	2 45	171 555	3 414
42	2	2	1 299.11	.93	2	77 944.8	2 50	176 753	3 619
43	2	3	1 330.04	.94	3	79 800.7	2 55	181 951	3 829
44	2	4	1 360.97	.94	4	81 656.7	2 60	187 149	4 044
56 45	30.932	45	1 391.91	1855.95	45	83 512.6	2 65	192 347	4 264
46	3	6	1 422.84	.95	6	85 368.6	2 70	197 545	4 489
47	3	7	1 453.77	.96	7	87 224.5	2 75	202 743	4 719
48	3	8	1 484.70	.96	8	89 080.5	2 80	207 941	4 954
49	3	9	1 515.63	.97	9	90 936.4	2 85	213 139	5 194
56 50	30.933	50	1 546.56	1855.97	50	92 792.4	2 90	218 337	5 439
51	3	1	1 577.49	.98	1	94 648.4	2 95	223 535	5 689
52	3	2	1 608.42	.98	2	96 504.4	3 00	228 733	5 944
53	3	3	1 639.36	.99	3	98 360.4	3 05	233 931	6 204
54	3	4	1 670.29	6.00	4	100 216.3	3 10	239 129	6 469
56 55	30.933	55	1 701.22	1856.00	55	102 072.3	3 15	244 327	6 739
56	3	6	1 732.15	.01	6	103 928.3	3 20	249 525	7 014
57	4	7	1 763.08	.01	7	105 784.4	3 25	254 723	7 294
58	4	8	1 794.01	.02	8	107 640.4	3 30	259 921	7 579
59	4	9	1 824.94	.02	9	109 496.4	3 35	265 119	7 864
56 60	30.934	60	1 855.87	1856.03	60	111 352.4	3 40	270 317	8 149

Latitude 57° to 58°—Area of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
57 00	16.882	33.76	50.65	67.53	84.41	101.29	118.17	135.05	151.94	168.82	2025.8	3038.7	4051.6	5064.5
1	.874	.75	.62	.50	.37	.25	.12	4.99	.87	2.5	4.9	7.4	49.8	2.3
2	.867	.73	.60	.47	.33	.20	.06	.93	.80	2.0	4.0	6.0	8.0	60.0
3	.859	.72	.58	.44	.30	.15	8.01	.87	.73	1.5	3.1	4.6	6.2	57.7
4	.852	.70	.56	.41	.26	.11	7.96	.81	.67	1.1	2.2	3.3	4.4	5.5
57 05	16.844	33.69	50.53	67.38	84.22	101.06	117.90	134.75	151.60	168.44	2021.3	3031.9	4042.6	5053.2
6	.836	.67	.51	.35	.18	1.02	.85	.69	.53	10.2	20.4	30.6	40.7	50.9
7	.829	.66	.49	.32	.14	0.97	.80	.63	.46	09.7	19.5	29.2	38.9	48.7
8	.821	.64	.46	.29	.11	.93	.75	.57	.39	9.3	8.6	7.8	7.1	6.4
9	.814	.63	.44	.26	.07	.88	.69	.51	.32	8.8	7.7	6.5	5.3	4.1
57 10	16.806	33.61	50.42	67.23	84.03	100.84	117.64	134.45	151.26	168.05	2016.8	3025.1	4033.5	5041.9
11	.799	.60	.40	.20	3.99	.79	.59	.39	.19	7.9	5.9	3.8	31.7	39.6
12	.791	.58	.37	.17	.95	.75	.53	.33	.12	7.5	5.0	2.4	29.9	7.3
13	.784	.57	.35	.13	.92	.70	.48	.27	1.05	7.0	4.0	21.0	8.0	5.1
14	.776	.55	.33	.10	.88	.66	.43	.21	0.99	6.6	3.1	19.7	6.2	2.8
57 15	16.768	33.54	50.30	67.07	83.84	100.61	117.37	134.15	150.92	167.61	2012.2	3018.3	4024.4	5030.5
16	.761	.52	.28	.04	.80	.56	.32	.09	.85	5.6	1.3	6.9	2.6	28.2
17	.753	.51	.26	7.01	.76	.52	.27	4.03	.78	5.2	10.4	5.6	20.8	6.0
18	.746	.49	.24	6.98	.73	.47	.22	3.97	.71	4.7	09.5	4.2	19.0	3.7
19	.738	.48	.21	.95	.69	.43	.16	.90	.65	4.3	8.6	2.9	7.1	21.4
57 20	16.731	33.46	50.19	66.92	83.65	100.38	117.11	133.84	150.58	167.27	2007.7	3011.5	4015.3	5019.2
21	.723	.45	.17	.89	.61	.34	.06	.78	.51	3.4	6.8	10.1	3.5	6.9
22	.715	.43	.15	.86	.57	.29	7.00	.72	.44	2.9	5.9	08.8	11.7	4.6
23	.708	.42	.12	.83	.54	.25	6.95	.66	.37	2.5	4.9	7.4	09.9	2.3
24	.700	.40	.10	.80	.50	.20	.90	.60	.30	2.0	4.0	6.0	8.1	10.1
57 25	16.693	33.39	50.08	66.77	83.46	100.16	116.84	133.54	150.24	166.93	2003.1	3004.7	4006.2	5007.8
26	.685	.37	.05	.74	.42	.11	.79	.48	.17	1.1	2.2	3.3	4.4	5.5
27	.677	.35	.03	.71	.38	.06	.74	.42	.10	0.6	1.3	1.9	2.6	3.2
28	.670	.34	50.01	.68	.35	100.02	.69	.36	50.03	1000.2	2000.4	3000.6	4000.8	5001.0
29	.662	.32	49.99	.65	.31	99.97	.63	.30	49.96	999.7	1999.5	2999.2	3999.0	4998.7
57 30	16.655	33.31	49.96	66.62	83.27	99.93	116.58	133.24	149.89	999.3	1998.6	2997.9	3997.1	4996.4
31	.647	.29	.94	.59	.23	.88	.53	.18	.82	8.8	7.7	6.5	5.3	4.1
32	.640	.28	.92	.56	.19	.84	.47	.12	.75	8.4	6.8	5.1	3.5	91.9
33	.632	.26	.90	.53	.16	.79	.42	.06	.69	7.9	5.8	3.7	91.7	89.6
34	.624	.25	.87	.50	.12	.75	.37	3.00	.62	7.5	4.9	2.4	89.8	7.3
57 35	16.617	33.23	49.85	66.47	83.08	99.70	116.31	132.93	149.55	997.0	1994.0	2991.0	3988.0	4985.0
36	.609	.22	.83	.44	.04	.65	.26	.87	.48	6.5	3.1	89.6	6.2	2.7
37	.602	.20	.81	.41	3.00	.61	.21	.81	.41	6.1	2.2	8.3	4.4	80.5
38	.594	.19	.78	.38	2.97	.56	.16	.75	.35	5.6	1.3	6.9	2.5	78.2
39	.586	.17	.76	.35	.93	.52	.10	.69	.28	5.2	90.4	5.5	80.7	5.9
57 40	16.579	33.16	49.74	66.32	82.89	99.47	116.05	132.63	149.21	994.7	1989.5	2984.2	3978.9	4973.6
41	.571	.14	.71	.29	.85	.43	6.00	.57	.14	4.3	8.6	2.8	7.1	71.3
42	.564	.13	.69	.25	.81	.38	5.94	.51	.07	3.8	7.6	1.4	5.3	69.1
43	.556	.11	.67	.22	.78	.34	.89	.45	9.01	3.4	6.7	80.1	3.4	6.8
44	.548	.10	.65	.19	.74	.29	.84	.39	8.94	2.9	5.8	78.7	71.6	4.5
57 45	16.541	33.08	49.62	66.16	82.70	99.24	115.78	132.33	148.87	992.4	1984.9	2977.3	3969.8	4962.2
46	.533	.07	.60	.13	.66	.20	.73	.26	.80	2.0	4.0	6.0	7.9	59.9
47	.525	.05	.58	.10	.62	.15	.68	.20	.73	1.5	3.1	4.6	6.1	7.6
48	.518	.04	.55	.07	.59	.11	.63	.14	.66	1.1	2.1	3.2	4.3	5.4
49	.510	.02	.53	.04	.55	.06	.57	.08	.59	0.6	1.2	1.8	2.5	3.1
57 50	16.503	33.01	49.51	66.01	82.51	99.02	115.52	132.02	148.53	990.2	1980.3	2970.5	3960.6	4950.8
51	.495	2.99	.49	5.98	.47	8.97	.47	1.96	.46	89.7	79.4	69.1	58.8	48.5
52	.487	.97	.46	.95	.43	.92	.41	.90	.39	9.2	8.5	7.7	7.0	6.2
53	.480	.96	.44	.92	.40	.88	.36	.84	.32	8.8	7.5	6.4	5.1	3.9
54	.472	.94	.42	.89	.36	.83	.30	.78	.25	8.3	6.6	5.0	3.3	41.6
57 55	16.465	32.93	49.39	65.86	82.32	98.79	115.25	131.72	148.18	987.9	1975.7	2963.6	3951.5	4939.4
56	.457	.91	.37	.83	.28	.74	.20	.66	.11	7.4	4.8	2.2	49.7	7.1
57	.449	.90	.35	.80	.24	.70	.14	.59	8.04	7.0	3.9	60.9	7.8	4.8
58	.442	.88	.33	.77	.21	.65	.09	.53	7.97	6.5	3.0	59.5	6.0	2.5
59	.434	.87	.30	.74	.17	.60	5.03	.47	.90	6.0	2.1	8.1	4.2	30.2
57 60	16.426	32.85	49.28	65.71	82.13	98.56	114.98	131.41	147.84	985.6	1971.2	2956.8	3942.3	4927.9

		Latitude 57° to 58°—Meridional arcs.						Latitude 57°—Co-ordinates of curvature.							
Lat.		Value of 1''		Sums of seconds for middle latitude 57° 30'		Value of 1'		Continuous sums of minutes from latitude 57° 00'		Longitude.		X		Y	
°	'	Meters.		''	Meters.	Meters.	'	Meters.	°	'	Meters.	Meters.			
57	00	30.934				1856.03			0	1	1 012.9	0.1			
	1	4	1	30.94	.03	1	1 856.0	0	1	2 025.8	0.5				
	2	4	2	61.87	.04	2	3 712.1	2	2	3 038.7	1.1				
	3	4	3	92.81	.04	3	5 568.1	3	3	4 051.6	2.0				
	4	4	4	123.75	.05	4	7 424.1	4	4	5 064.5	3.1				
57	05	30.934	5	154.68	1856.05	5	9 280.2	0	5	6 077.4	4.4				
	6	4	6	185.62	.06	6	11 136.2	6	6	7 090.3	6.0				
	7	4	7	216.55	.06	7	12 992.3	7	7	8 103.3	7.9				
	8	4	8	247.49	.07	8	14 848.4	8	8	9 116.2	10.0				
	9	5	9	278.43	.07	9	16 704.4	9	9						
57	10	30.935	10	309.36	1856.08	10	18 560.5	0	10	10 129.1	12.4				
	11	5	11	340.30	.08	11	20 416.6	15	15	15 193.6	27.8				
	12	5	12	371.24	.09	12	22 272.7	20	20	20 258.1	49.4				
	13	5	13	402.17	.09	13	24 128.7	25	25	25 322.5	77.2				
	14	5	14	433.11	.10	14	25 984.8	30	30	30 387.0	111.2				
57	15	30.935	15	464.04	1856.10	15	27 840.9	0	35	35 451.3	151.3				
	16	5	16	494.98	.11	16	29 697.0	40	40	40 515.6	197.7				
	17	5	17	525.92	.11	17	31 553.1	45	45	45 579.9	250.2				
	18	5	18	556.85	.12	18	33 409.3	50	50	50 644.1	308.9				
	19	5	19	587.79	.12	19	35 265.4	55	55	55 708.2	373.7				
57	20	30.935	20	618.73	1856.13	20	37 121.5	1	00	60 772.3	444.8				
	21	6	1	649.66	.13	1	38 977.6	05	05	65 836.2	522.0				
	22	6	2	680.60	.14	2	40 833.7	10	10	70 900.1	605.4				
	23	6	3	711.53	.14	3	42 689.9	15	15	75 963.8	695.0				
	24	6	4	742.47	.15	4	44 546.0	20	20	81 027.5	790.7				
57	25	30.936	25	773.41	1856.15	25	46 402.2	1	25	86 091.0	892.6				
	26	6	6	804.34	.16	6	48 258.3	30	30	91 154.3	1 000.7				
	27	6	7	835.28	.16	7	50 114.5	35	35	96 217.6	1 115.0				
	28	6	8	866.22	.17	8	51 970.7	40	40	101 280.7	1 235.5				
	29	6	9	897.15	.17	9	53 826.8	45	45	106 343.6	1 362.1				
57	30	30.936	30	928.09	1856.18	30	55 683.0	1	50	111 406.4	1 494.9				
	31	6	1	959.02	.18	1	57 539.2	55	55	116 469.1	1 633.9				
	32	6	2	989.96	.19	2	59 395.4	2	00	121 532	1 779				
	33	7	3	1 020.90	.19	3	61 251.6	3	00	182 265	4 003				
	34	7	4	1 051.83	.20	4	63 107.8	4	00	242 959	7 115				
57	35	30.937	35	1 082.77	1856.20	35	64 964.0	5	00	303 601	11 115				
	36	7	6	1 113.71	.21	6	66 820.2	6	00	364 178	16 002				
	37	7	7	1 144.64	.21	7	68 676.4	7	00	424 677	21 776				
	38	7	8	1 175.58	.22	8	70 532.6	8	00	485 085	28 434				
	39	7	9	1 206.51	.22	9	72 388.8	9	00	545 389	35 976				
57	40	30.937	40	1 237.45	1856.23	40	74 245.0	10	00	605 577	44 400				
	41	7	1	1 268.39	.23	1	76 101.3	11	00	665 634	53 704				
	42	7	2	1 299.32	.24	2	77 957.5	12	00	725 549	63 886				
	43	7	3	1 330.26	.24	3	79 813.7	13	00	785 308	74 944				
	44	7	4	1 361.20	.25	4	81 669.9	14	00	844 900	86 875				
57	45	30.938	45	1 392.13	1856.25	45	83 526.2	15	00	904 310	99 677				
	46	8	6	1 423.07	.26	6	85 382.5	16	00	963 526	113 348				
	47	8	7	1 454.00	.26	7	87 238.7	17	00	1 022 536	127 884				
	48	8	8	1 484.94	.27	8	89 095.0	18	00	1 081 327	143 282				
	49	8	9	1 515.88	.27	9	90 951.2	19	00	1 139 886	159 539				
57	50	30.938	50	1 546.81	1856.28	50	92 807.5	20	00	1 198 201	176 651				
	51	8	1	1 577.75	.28	1	94 663.8	21	00	1 256 260	194 615				
	52	8	2	1 608.69	.29	2	96 520.1	22	00	1 314 048	213 427				
	53	8	3	1 639.62	.29	3	98 376.4	23	00	1 371 556	233 082				
	54	8	4	1 670.56	.30	4	100 232.7	24	00	1 428 770	253 578				
57	55	30.938	55	1 701.49	1856.30	55	102 089.0	25	00	1 485 678	274 908				
	56	8	6	1 732.43	.31	6	103 945.3	26	00	1 542 267	297 070				
	57	9	7	1 763.37	.31	7	105 801.6	27	00	1 598 525	320 057				
	58	9	8	1 794.30	.31	8	107 657.9	28	00	1 654 442	343 865				
	59	9	9	1 825.24	.32	9	109 514.2	29	00	1 710 004	368 489				
57	60	30.939	60	1 856.18	1856.32	60	111 370.5	30	00	1 765 199	393 924				

Latitude 58° to 59°—Arcs of the parallel in meters.

Lat	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
58 00	16.426	32.85	49.28	65.71	82.13	98.56	114.98	131.41	147.84	985.6	1971.2	2956.8	3942.3	4927.9
1	.419	.84	.26	.68	.09	.51	.93	.35	.77	5.1	70.3	5.4	40.5	5.6
2	.411	.82	.23	.65	.06	.47	.87	.29	.70	4.7	69.4	4.0	38.7	3.3
3	.403	.81	.21	.61	.02	.42	.82	.23	.63	4.2	68.4	2.6	36.8	2.0
4	.396	.79	.19	.58	1.98	.38	.77	.17	.56	3.8	67.5	51.3	5.0	18.8
58 05	16.388	32.78	49.16	65.55	81.94	98.33	114.71	131.11	147.49	983.3	1966.6	2949.9	3933.2	4916.5
6	.381	.76	.14	.52	.90	.28	.66	1.04	.42	2.8	5.7	8.5	31.3	4.2
7	.373	.75	.12	.49	.86	.24	.61	0.98	.35	2.4	4.8	7.1	29.5	11.9
8	.365	.73	.10	.46	.83	.19	.56	.92	.29	1.9	3.8	5.8	7.7	09.6
9	.358	.72	.07	.43	.79	.15	.50	.86	.22	1.5	2.9	4.4	5.8	7.3
58 10	16.350	32.70	49.05	65.40	81.75	98.10	114.45	130.80	147.15	981.0	1962.0	2943.0	3924.0	4905.0
11	.342	.68	.03	.37	.71	.05	.40	.74	.08	0.5	1.1	1.6	2.2	2.7
12	.335	.67	9.00	.34	.67	8.01	.34	.68	7.01	80.1	60.2	40.2	20.3	900.4
13	.327	.65	8.98	.31	.64	7.96	.29	.62	6.94	79.6	59.2	38.9	18.5	898.1
14	.319	.64	.96	.28	.60	.92	.23	.56	.87	9.2	8.3	7.5	6.7	5.8
58 15	16.312	32.62	48.93	65.25	81.56	97.87	114.18	130.49	146.81	978.7	1957.4	2936.1	3914.8	4893.5
16	.304	.61	.91	.22	.52	.82	.13	.43	.74	8.2	6.5	4.7	3.0	91.2
17	.296	.59	.89	.19	.48	.78	.07	.37	.67	7.8	5.6	3.4	11.1	88.9
18	.289	.58	.87	.15	.45	.73	4.02	.31	.60	7.3	4.6	2.0	09.3	6.6
19	.281	.56	.84	.12	.41	.69	3.96	.25	.53	6.9	3.7	30.6	7.5	4.3
58 20	16.273	32.55	48.82	65.09	81.37	97.64	113.91	130.19	146.46	976.4	1952.8	2929.2	3905.6	4882.0
21	.266	.53	.80	.06	.33	.59	.86	.13	.39	5.9	1.9	7.8	3.8	79.7
22	.258	.52	.77	.03	.29	.55	.80	.07	.32	5.5	1.0	6.5	2.0	7.4
23	.250	.50	.75	5.00	.25	.50	.75	30.00	.25	5.0	50.0	5.1	900.1	5.1
24	.243	.49	.73	4.97	.21	.46	.70	29.94	.18	4.6	49.1	3.7	898.3	2.8
58 25	16.235	32.47	48.70	64.94	81.18	97.41	113.64	129.88	146.12	974.1	1948.2	2922.3	3896.4	4870.5
26	.227	.45	.68	.91	.14	.36	.59	.82	6.05	3.6	7.3	20.9	4.6	68.2
27	.220	.44	.66	.88	.10	.32	.54	.76	5.98	3.2	6.4	19.6	2.8	5.9
28	.212	.42	.64	.85	.06	.27	.49	.70	.91	2.7	5.4	8.2	90.9	3.6
29	.204	.41	.61	.82	1.02	.23	.43	.64	.84	2.3	4.5	6.8	89.1	61.3
58 30	16.197	32.39	48.59	64.79	80.98	97.18	113.38	129.57	145.77	971.8	1943.6	2915.4	3887.2	4859.0
31	.189	.38	.57	.76	.94	.13	.33	.51	.70	1.3	2.7	4.0	5.4	6.7
32	.181	.36	.54	.73	.90	.09	.27	.45	.63	0.9	1.8	2.7	3.5	4.4
33	.174	.35	.52	.69	.87	.04	.22	.39	.56	0.4	40.8	11.3	81.7	52.1
34	.166	.33	.50	.66	.83	7.00	.16	.33	.49	70.0	39.9	09.9	79.9	49.8
58 35	16.158	32.32	48.47	64.63	80.79	96.95	113.11	129.27	145.43	969.5	1939.0	2908.5	3878.0	4847.5
36	.151	.30	.45	.60	.75	.90	.06	.21	.36	9.0	8.1	7.1	6.2	5.2
37	.143	.29	.43	.57	.71	.86	3.00	.14	.29	8.6	7.2	5.7	4.3	2.9
38	.135	.27	.41	.54	.68	.81	2.95	.08	.22	8.1	6.2	4.4	2.5	40.6
39	.128	.26	.38	.51	.64	.77	.89	9.02	.15	7.7	5.3	3.0	70.6	38.3
58 40	16.120	32.24	48.36	64.48	80.60	96.72	112.84	128.96	145.08	967.2	1934.4	2901.6	3868.8	4836.0
41	.112	.22	.34	.45	.56	.67	.79	.90	5.01	6.7	3.5	900.2	6.9	3.7
42	.105	.21	.31	.42	.52	.63	.73	.84	4.94	6.3	2.6	898.8	5.1	31.4
43	.097	.19	.29	.39	.49	.58	.68	.78	.87	5.8	1.6	7.4	3.3	29.1
44	.089	.18	.27	.36	.45	.54	.62	.71	.80	5.4	30.7	6.1	61.4	6.8
58 45	16.081	32.16	48.24	64.33	80.41	96.49	112.57	128.65	144.73	964.9	1929.8	2894.7	3859.6	4824.4
46	.074	.15	.22	.30	.37	.44	.52	.59	.67	4.4	8.9	3.3	7.7	22.1
47	.066	.13	.20	.27	.33	.40	.46	.53	.60	4.0	8.0	1.9	5.9	19.8
48	.058	.12	.18	.23	.30	.35	.41	.47	.53	3.5	7.0	90.5	4.0	7.5
49	.051	.10	.15	.20	.26	.30	.35	.41	.46	3.0	6.1	89.1	2.2	5.2
58 50	16.043	32.09	48.13	64.17	80.22	96.26	112.30	128.34	144.39	962.6	1925.2	2887.7	3850.3	4812.9
51	.035	.07	.11	.14	.18	.21	.25	.28	.32	2.1	4.3	6.4	48.5	10.6
52	.028	.06	.08	.11	.14	.17	.19	.22	.25	1.7	3.3	5.0	6.6	08.3
53	.020	.04	.06	.08	.10	.12	.14	.16	.18	1.2	2.4	3.6	4.8	6.0
54	.012	.02	.04	.05	.06	.07	.08	.10	.11	0.7	1.4	2.2	2.9	3.7
58 55	16.004	32.01	48.01	64.02	80.02	96.03	112.03	128.04	144.04	960.3	1920.5	2880.8	3841.1	4801.3
56	5.997	1.99	7.99	3.99	79.99	5.98	1.98	7.97	3.97	59.8	19.6	79.4	39.2	799.0
57	.989	.98	.97	.96	.95	.93	.92	.91	.90	9.3	8.7	8.0	7.4	6.7
58	.981	.96	.94	.92	.91	.89	.87	.85	.83	8.9	7.7	6.6	5.5	4.4
59	.974	.95	.92	.89	.87	.84	.81	.79	.76	8.4	6.8	5.3	3.7	92.1
58 60	15.966	31.93	47.90	63.86	79.83	95.80	111.76	127.73	143.69	958.0	1915.9	2873.9	3831.8	4789.8

Lat.	Latitude 58° to 59°—Meridional arcs.						Latitude 58°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 58° 30'		Value of 1'	Continuous sums of minutes from latitude 58° 00'		Longitude.	X	Y
° '	Meters.	"	Meters.	Meters.	'	Meters.	° '	Meters.	Meters.
58 00	30.939			1856.32			0 1	985.6	0.1
1	9	1	30.94	.33	1	1 856.3	0 2	985.6	0.1
2	9	2	61.88	.33	2	3 712.7	0 3	1 971.2	0.5
3	9	3	92.82	.34	3	5 569.0	0 4	2 956.8	1.1
4	9	4	123.76	.34	4	7 425.3	0 5	3 942.3	1.9
58 05	30.939	5	154.71	1856.35	5	9 281.7	0 6	4 927.9	3.0
6	9	6	185.65	.35	6	11 138.0	0 7	5 913.5	4.4
7	9	7	216.59	.36	7	12 994.4	0 8	6 899.1	6.0
8	9	8	247.53	.36	8	14 850.7	0 9	7 884.7	7.8
9	39	9	278.47	.37	9	16 707.1		8 870.3	9.8
58 10	30.940	10	309.41	1856.37	10	18 563.5	0 10	9 855.8	12.2
11	0	11	340.35	.38	11	20 419.9	0 15	14 783.7	27.4
12	0	12	371.29	.38	12	22 276.2	0 20	19 711.6	48.6
13	0	13	402.24	.39	13	24 132.6	0 25	24 639.5	76.0
14	0	14	433.18	.39	14	25 989.0	0 30	29 567.3	109.4
58 15	30.940	15	464.12	1856.40	15	27 845.4	0 35	34 495.0	148.9
16	0	16	495.06	.40	16	29 701.8	0 40	39 422.8	194.5
17	0	17	526.00	.41	17	31 558.2	0 45	44 350.4	246.2
18	0	18	556.94	.41	18	33 414.6	0 50	49 278.0	303.9
19	0	19	587.88	.42	19	35 271.0	0 55	54 205.5	367.7
58 20	30.940	20	618.82	1856.42	20	37 127.5	1 00	59 132.9	437.6
21	0	21	649.77	.43	21	38 983.9	1 05	64 060.2	513.6
22	1	22	680.71	.43	22	40 840.3	1 10	68 987.5	595.6
23	1	23	711.65	.44	23	42 696.8	1 15	73 914.7	683.8
24	1	24	742.59	.44	24	44 553.2	1 20	78 841.7	778.0
58 25	30.941	25	773.53	1856.45	25	46 409.6	1 25	83 768.6	878.3
26	1	26	804.47	.45	26	48 266.1	1 30	88 695.4	984.6
27	1	27	835.41	.46	27	50 122.6	1 35	93 622.0	1 097.1
28	1	28	866.35	.46	28	51 979.0	1 40	98 548.5	1 215.6
29	1	29	897.30	.47	29	53 835.5	1 45	103 474.8	1 340.2
58 30	30.941	30	928.24	1856.47	30	55 692.0	1 50	108 401.0	1 470.8
31	1	31	959.18	.48	31	57 548.4	1 55	113 327.1	1 607.6
32	1	32	990.12	.48	32	59 404.9	2 00	118 253	1 750
33	1	33	1 021.06	.49	33	61 261.4	2 05	123 179	1 900
34	2	34	1 052.00	.49	34	63 117.9	2 10	128 105	2 050
58 35	30.942	35	1 082.94	1856.50	35	64 974.4	2 15	133 031	2 200
36	2	36	1 113.88	.50	36	66 830.9	2 20	137 957	2 350
37	2	37	1 144.83	.51	37	68 687.4	2 25	142 883	2 500
38	2	38	1 175.77	.51	38	70 543.9	2 30	147 809	2 650
39	2	39	1 206.71	.52	39	72 400.4	2 35	152 735	2 800
58 40	30.942	40	1 237.65	1856.52	40	74 256.9	2 40	157 661	2 950
41	2	41	1 268.59	.53	41	76 113.5	2 45	162 587	3 100
42	2	42	1 299.53	.53	42	77 970.0	2 50	167 513	3 250
43	2	43	1 330.47	.54	43	79 826.5	2 55	172 439	3 400
44	2	44	1 361.41	.54	44	81 683.1	2 60	177 365	3 550
58 45	30.942	45	1 392.35	1856.55	45	83 539.6	2 65	182 291	3 700
46	3	46	1 423.30	.55	46	85 396.2	2 70	187 217	3 850
47	3	47	1 454.24	.56	47	87 252.7	2 75	192 143	4 000
48	3	48	1 485.18	.56	48	89 109.3	2 80	197 069	4 150
49	3	49	1 516.12	.57	49	90 965.8	2 85	201 995	4 300
58 50	30.943	50	1 547.06	1856.57	50	92 822.4	2 90	206 921	4 450
51	3	51	1 578.00	.58	51	94 679.0	2 95	211 847	4 600
52	3	52	1 608.94	.58	52	96 535.6	3 00	216 773	4 750
53	3	53	1 639.88	.59	53	98 392.1	3 05	221 699	4 900
54	3	54	1 670.83	.59	54	100 248.7	3 10	226 625	5 050
58 55	30.943	55	1 701.77	1856.59	55	102 105.3	3 15	231 551	5 200
56	3	56	1 732.71	.60	56	103 961.9	3 20	236 477	5 350
57	3	57	1 763.65	.60	57	105 818.5	3 25	241 403	5 500
58	3	58	1 794.59	.61	58	107 675.1	3 30	246 329	5 650
59	4	59	1 825.53	.61	59	109 531.8	3 35	251 255	5 800
58 60	30.944	60	1 856.47	1856.62	60	111 388.4	3 40	256 181	5 950

Latitude 59° to 60°—Arca of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
59 00	15.966	31.93	47.90	63.86	79.83	95.80	111.76	127.73	143.69	958.0	1915.9	2873.9	3831.8	4789.8
1	.958	.92	.88	.83	.79	.75	.71	.67	.62	7.5	5.0	2.5	30.0	7.5
2	.951	.90	.85	.80	.75	.70	.65	.61	.55	7.0	4.1	71.1	28.1	5.2
3	.943	.89	.83	.77	.71	.66	.60	.55	.48	6.6	3.1	69.7	6.3	2.8
4	.935	.87	.81	.74	.67	.61	.54	.48	.41	6.1	2.2	8.3	4.4	80.5
59 05	15.927	31.85	47.78	63.71	79.63	95.56	111.49	127.42	143.34	955.6	1911.3	2866.9	3822.6	4778.2
6	.920	.84	.76	.67	.60	.52	.44	.36	.28	5.2	10.4	5.5	20.7	5.9
7	.912	.82	.74	.65	.56	.47	.38	.30	.21	4.7	09.5	4.1	18.9	3.6
8	.904	.81	.71	.62	.52	.43	.33	.23	.14	4.3	8.5	2.8	7.0	71.3
9	.896	.79	.69	.58	.48	.38	.27	.17	.07	3.8	7.6	1.4	5.1	68.9
59 10	15.889	31.78	47.67	63.55	79.44	95.33	111.22	127.11	143.00	953.3	1906.7	2860.0	3813.3	4766.6
11	.881	.76	.64	.52	.40	.29	.17	7.05	2.93	2.9	5.8	58.6	11.4	4.3
12	.873	.75	.62	.49	.36	.24	.11	6.99	.86	2.4	4.8	7.2	09.6	62.0
13	.866	.73	.60	.46	.33	.19	.06	.92	.79	1.9	3.9	5.8	7.7	59.7
14	.858	.72	.57	.43	.29	.15	1.00	.86	.72	1.5	2.9	4.4	5.9	7.3
59 15	15.850	31.70	47.55	63.40	79.25	95.10	110.95	126.80	142.65	951.0	1902.0	2853.0	3804.0	4755.0
16	.842	.68	.53	.37	.21	.05	.90	.74	.58	0.5	1.1	1.6	2.2	2.7
17	.835	.67	.50	.34	.17	5.00	.84	.68	.51	50.1	900.2	50.2	800.3	50.4
18	.827	.65	.48	.31	.14	4.95	.79	.61	.44	49.6	899.2	48.8	798.4	48.1
19	.819	.64	.46	.28	.10	.91	.73	.55	.37	9.1	8.3	7.4	6.6	5.7
59 20	15.811	31.62	47.43	63.25	79.06	94.87	110.68	126.49	142.30	948.7	1897.4	2846.0	3794.7	4743.4
21	.804	.61	.41	.22	9.02	.82	.63	.43	.23	8.2	6.5	4.6	2.9	41.1
22	.796	.59	.39	.19	8.98	.78	.57	.37	.16	7.8	5.5	3.3	91.0	38.8
23	.788	.58	.36	.15	.94	.73	.52	.30	.09	7.3	4.6	1.9	89.2	6.4
24	.780	.55	.34	.12	.90	.68	.46	.24	2.02	6.8	3.6	40.5	7.3	4.1
59 25	15.773	31.55	47.32	63.09	78.87	94.64	110.41	126.18	141.96	946.4	1892.7	2839.1	3785.4	4731.8
26	.765	.53	.29	.06	.83	.59	.36	.12	.89	5.9	1.8	7.7	3.6	29.5
27	.757	.52	.27	.03	.79	.54	.30	6.06	.82	5.4	90.9	6.3	81.7	7.1
28	.749	.50	.25	3.00	.75	.50	.25	5.99	.75	5.0	89.9	4.9	79.8	4.8
29	.742	.49	.22	2.97	.71	.45	.19	.93	.68	4.5	9.0	3.5	8.0	2.5
59 30	15.734	31.47	47.20	62.94	78.67	94.40	110.14	125.87	141.61	944.0	1888.1	2832.1	3776.1	4720.2
31	.726	.45	.18	.91	.63	.36	.09	.81	.54	3.6	7.2	30.7	4.3	17.8
32	.718	.44	.15	.87	.59	.31	.03	.75	.47	3.1	6.2	29.3	2.4	5.5
33	.711	.42	.13	.84	.55	.26	09.98	.68	.40	2.6	5.3	7.9	70.5	3.2
34	.703	.41	.11	.81	.51	.22	09.92	.62	.33	2.2	4.3	6.5	68.7	10.8
59 35	15.695	31.39	47.08	62.78	78.48	94.17	109.87	125.56	141.26	941.7	1883.4	2825.1	3766.8	4708.5
36	.687	.38	.06	.75	.44	.12	.81	.50	.19	1.2	2.5	3.7	4.9	6.2
37	.680	.36	.04	.72	.40	.08	.76	.44	.12	0.8	1.6	2.3	3.1	3.9
38	.672	.34	7.02	.68	.36	4.03	.70	.37	1.05	40.3	80.6	20.9	61.2	701.5
39	.664	.33	6.99	.65	.32	3.98	.64	.31	0.97	39.8	79.7	19.5	59.4	699.2
59 40	15.656	31.31	46.97	62.62	78.28	93.94	109.59	125.25	140.91	939.4	1878.8	2818.1	3757.5	4696.9
41	.648	.30	.95	.59	.24	.89	.54	.19	.84	8.9	7.8	6.7	5.6	4.5
42	.641	.28	.92	.56	.20	.84	.48	.13	.77	8.4	6.9	5.3	3.8	92.2
43	.633	.27	.90	.53	.17	.80	.43	.06	.70	8.0	6.0	3.9	1.9	89.9
44	.625	.25	.88	.50	.12	.75	.37	5.00	.63	7.5	5.0	2.5	50.0	7.5
59 45	15.617	31.23	46.85	62.47	78.09	93.70	109.32	124.94	140.56	937.0	1874.1	2811.1	3748.2	4685.2
46	.610	.22	.83	.44	.05	.66	.27	.88	.49	6.6	3.2	09.7	6.3	2.9
47	.602	.20	.81	.40	8.01	.61	.21	.81	.42	6.1	2.2	8.3	4.4	80.5
48	.594	.19	.78	.38	7.97	.56	.16	.75	.35	5.6	1.3	6.9	2.6	78.2
49	.586	.17	.76	.34	.93	.52	.10	.69	.28	5.2	70.3	5.5	40.7	5.9
59 50	15.579	31.16	46.74	62.31	77.89	93.47	109.05	124.63	140.21	934.7	1869.4	2804.1	3738.8	4673.6
51	.571	.14	.71	.28	.85	.42	9.00	.57	.14	4.2	8.5	02.7	7.0	71.2
52	.563	.13	.69	.25	.81	.38	8.94	.50	.07	3.8	7.5	801.3	5.1	68.9
53	.555	.11	.67	.22	.77	.33	.89	.44	40.00	3.3	6.6	799.9	3.2	6.5
54	.547	.09	.64	.18	.73	.28	.83	.37	39.92	2.8	5.7	8.5	31.4	4.2
59 55	15.540	31.08	46.62	62.15	77.70	93.24	108.78	124.31	139.86	932.4	1864.7	2797.1	3729.5	4661.9
56	.532	.06	.60	.12	.66	.19	.72	.25	.79	1.9	3.8	5.7	7.6	59.5
57	.524	.05	.57	.09	.62	.14	.67	.19	.72	1.4	2.9	4.3	5.8	7.2
58	.516	.03	.55	.06	.58	.10	.61	.13	.65	1.0	1.9	2.9	3.9	4.9
59	.508	.02	.52	.03	.54	.05	.56	.07	.58	0.5	1.0	1.5	2.0	2.5
59 60	15.501	31.00	46.50	62.00	77.50	93.00	108.50	124.00	139.51	930.0	1860.1	2790.1	3720.1	4650.2

Lat.	Latitude 59° to 60°—Meridional arcs.						Latitude 59°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 59° 30'		Value of 1'	Continuous sums of minutes from latitude 59° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
59 00	30.944			1856.62			0 1	958.0	0.1
1	4	1	30.95	.62	1	1856.6	0 2	1915.9	0.5
2	4	2	61.89	.63	2	3713.2	0 3	2873.9	1.1
3	4	3	92.84	.63	3	5569.9	0 4	3831.9	1.9
4	4	4	123.78	.64	4	7426.5	0 5	4789.8	3.0
59 05	30.944	5	154.73	1856.64	5	9283.2	0 6	5747.7	4.3
6	4	6	185.68	.65	6	11139.8	0 7	6705.7	5.9
7	4	7	216.62	.65	7	12996.4	0 8	7663.7	7.6
8	4	8	247.57	.66	8	14853.1	0 9	8621.6	9.7
9	4	9	278.51	.66	9	16709.8			
59 10	30.944	10	309.46	1856.67	10	18566.4	0 10	9579.6	11.9
11	5	1	340.41	.67	1	20423.1	0 15	14369.3	26.9
12	5	2	371.35	.68	2	22279.8	0 20	19159.1	47.8
13	5	3	402.30	.68	3	24136.5	0 25	23948.8	74.6
14	5	4	433.25	.69	4	25993.1	0 30	28738.5	107.5
59 15	30.945	15	464.19	1856.69	15	27849.8	0 35	33528.1	146.3
16	5	6	495.14	.70	6	29706.5	0 40	38317.7	191.1
17	5	7	526.08	.70	7	31563.2	0 45	43107.2	241.8
18	5	8	557.03	.71	8	33419.9	0 50	47896.7	298.6
19	5	9	587.98	.71	9	35276.6	0 55	52686.1	361.2
59 20	30.945	20	618.92	1856.72	20	37133.4	1 00	57475.4	429.9
21	5	1	649.87	.72	1	38990.1	05	62264.6	504.5
22	5	2	680.81	.73	2	40846.8	10	67053.7	585.2
23	6	3	711.76	.73	3	42703.5	15	71842.7	671.7
24	6	4	742.71	.74	4	44560.3	20	76631.6	764.3
59 25	30.946	25	773.65	1856.74	25	46417.0	1 25	81420.4	862.8
26	6	6	804.60	.75	6	48273.7	30	86209.0	967.3
27	6	7	835.54	.75	7	50130.5	35	90997.5	1077.8
28	6	8	866.49	.75	8	51987.2	40	95785.9	1194.2
29	6	9	897.44	.76	9	53844.0	45	100574.1	1316.6
59 30	30.946	30	928.38	1856.76	30	55700.8	1 50	105362.2	1445.0
31	6	1	959.33	.77	1	57557.5	55	110150.1	1579.3
32	6	2	990.27	.77	2	59414.3	2 00	114938	1720
33	6	3	1021.22	.78	3	61271.1	3 00	172375	3869
34	6	4	1052.17	.78	4	63127.9	4 00	229773	6877
59 35	30.946	35	1083.11	1856.79	35	64984.6	5 00	287120	10744
36	7	6	1114.06	.79	6	66841.4	6 00	344402	15468
37	7	7	1145.00	.80	7	68698.2	7 00	401608	21048
38	7	8	1175.95	.80	8	70555.0	8 00	458723	27484
39	7	9	1206.90	.81	9	72411.8	9 00	515736	34773
59 40	30.947	40	1237.84	1856.81	40	74268.7	10 00	572633	42914
41	7	1	1268.79	.82	1	76125.5	11 00	629403	51906
42	7	2	1299.74	.82	2	77982.3	12 00	686031	61746
43	7	3	1330.68	.83	3	79839.1	13 00	742506	72432
44	7	4	1361.63	.83	4	81695.9	14 00	798815	83961
59 45	30.947	45	1392.57	1856.84	45	83552.8	15 00	854945	96332
46	7	6	1423.52	.84	6	85409.6	16 00	910883	109541
47	7	7	1454.47	.85	7	87266.5	17 00	966618	123585
48	8	8	1485.41	.85	8	89123.3	18 00	1022136	138462
49	8	9	1516.36	.86	9	90980.2	19 00	1077426	154167
59 50	30.948	50	1547.30	1856.86	50	92837.0	20 00	1132474	170698
51	8	1	1578.25	.87	1	94693.9	21 00	1187269	188050
52	8	2	1609.20	.87	2	96550.8	22 00	1241799	206221
53	8	3	1640.14	.88	3	98407.6	23 00	1296050	225205
54	8	4	1671.09	.88	4	100264.5	24 00	1350011	244998
59 55	30.948	55	1702.03	1856.88	55	102121.4	25 00	1403671	265597
56	8	6	1732.98	.89	6	103978.3	26 00	1457015	286995
57	8	7	1763.93	.89	7	105835.2	27 00	1510034	309190
58	8	8	1794.87	.90	8	107692.1	28 00	1562715	332175
59	8	9	1825.82	.90	9	109549.0	29 00	1615047	355946
59 60	30.948	60	1856.76	1856.91	60	111405.9	30 00	1667016	380497

Latitude 60° to 61°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
60 00	15.501	31.00	46.50	62.00	77.50	93.00	108.50	124.00	139.51	930.0	1860.1	2790.1	3720.1	4650.2
1	.493	.99	.48	1.97	.46	92.96	.45	123.94	.44	29.6	59.2	88.7	18.3	47.8
2	.485	.97	.45	.94	.42	.91	.39	.88	.37	9.1	8.2	7.3	6.4	5.5
3	.477	.96	.43	.91	.38	.86	.34	.81	.30	8.6	7.3	5.9	4.5	3.2
4	.469	.94	.41	.88	.34	.82	.28	.75	.23	8.2	6.3	4.5	2.6	40.8
60 05	15.462	30.92	46.38	61.84	77.31	92.77	108.23	123.69	139.15	927.7	1855.4	2783.1	3710.8	4638.5
6	.454	.91	.36	.81	.27	.72	.18	.63	.08	7.2	4.5	1.7	08.9	6.1
7	.446	.89	.34	.78	.23	.68	.12	.57	.01	6.8	3.5	80.3	7.0	3.8
8	.438	.88	.31	.75	.19	.63	.07	.50	.8.94	6.3	2.6	78.9	5.2	1.4
9	.430	.86	.29	.72	.15	.58	8.01	.44	.87	5.8	1.6	7.5	3.3	29.1
60 10	15.423	30.85	46.27	61.69	77.11	92.54	107.96	123.38	138.80	925.4	1850.7	2776.1	3701.4	4626.8
11	.415	.83	.24	.66	.07	.49	.91	.32	.73	4.9	49.8	4.7	699.5	4.4
12	.407	.81	.22	.63	7.03	.44	.85	.26	.66	4.4	8.8	3.2	7.7	22.1
13	.399	.80	.20	.60	6.99	.39	.80	.19	.59	3.9	7.9	1.8	5.8	19.7
14	.391	.79	.17	.57	.95	.35	.74	.13	.52	3.5	6.9	70.4	3.9	7.4
60 15	15.383	30.77	46.15	61.53	76.92	92.30	107.69	123.07	138.45	923.0	1846.0	2769.0	3692.0	4615.0
16	.376	.75	.13	.50	.88	.25	.63	3.01	.38	2.5	5.1	7.6	90.2	2.7
17	.368	.74	.10	.47	.84	.21	.58	2.94	.31	2.1	4.1	6.2	88.3	10.4
18	.360	.72	.08	.44	.80	.16	.52	.88	.24	1.6	3.2	4.8	6.4	08.0
19	.352	.70	.06	.41	.76	.11	.47	.82	.17	1.1	2.2	3.4	4.5	5.7
60 20	15.344	30.69	46.03	61.38	76.72	92.07	107.41	122.76	138.10	920.7	1841.3	2762.0	3682.7	4603.3
21	.337	.67	6.01	.35	.68	2.02	.36	.70	8.03	0.2	40.4	60.6	80.8	601.0
22	.329	.66	5.99	.32	.64	1.97	.30	.63	7.96	19.7	39.4	59.2	78.9	598.6
23	.321	.64	.96	.28	.60	.93	.25	.57	.89	9.3	8.5	7.8	7.0	6.3
24	.313	.63	.94	.25	.56	.88	.19	.51	.82	8.8	7.5	6.4	5.1	3.9
60 25	15.305	30.61	45.92	61.22	76.53	91.83	107.14	122.44	137.75	918.3	1836.6	2754.9	3673.3	4591.6
26	.297	.59	.89	.19	.49	.78	.08	.38	.67	7.8	5.7	3.5	71.4	89.2
27	.290	.58	.87	.16	.45	.74	7.03	.32	.60	7.4	5.4	2.1	69.5	6.9
28	.282	.56	.85	.12	.41	.69	6.97	.25	.53	6.9	3.8	50.7	7.6	4.5
29	.274	.55	.82	.09	.37	.64	.92	.19	.46	6.4	2.8	49.3	5.7	82.2
60 30	15.266	30.53	45.80	61.06	76.33	91.60	106.86	122.13	137.39	916.0	1831.9	2747.9	3663.9	4579.8
31	.258	.51	.78	.03	.29	.55	.81	.07	.32	5.5	1.0	6.5	2.0	7.5
32	.250	.50	.75	1.00	.25	.50	.75	2.00	.25	5.0	30.0	5.1	60.1	5.1
33	.243	.48	.73	0.97	.21	.46	.70	1.94	.18	4.6	29.1	3.7	58.2	2.8
34	.235	.47	.70	.94	.17	.41	.64	.88	.11	4.1	8.1	2.3	6.3	70.4
60 35	15.227	30.45	45.68	60.91	76.14	91.36	106.59	121.82	137.04	913.6	1827.2	2740.8	3654.5	4568.1
36	.219	.44	.66	.87	.10	.31	.53	.75	6.97	3.1	6.3	39.4	2.6	5.7
37	.211	.42	.63	.84	.06	.27	.48	.69	.90	2.7	5.4	8.0	50.7	3.4
38	.203	.41	.61	.81	6.02	.22	.42	.63	.83	2.2	4.4	6.6	48.8	61.0
39	.196	.39	.59	.78	5.98	.17	.37	.56	.76	1.7	3.4	5.2	6.9	58.7
60 40	15.188	30.38	45.56	60.75	75.94	91.13	106.31	121.50	136.69	911.3	1822.5	2733.8	3645.0	4556.3
41	.180	.36	.54	.72	.90	.08	.26	.44	.62	0.8	1.6	2.4	3.2	4.0
42	.172	.35	.52	.69	.86	1.03	.20	.37	.55	10.3	20.6	31.0	41.3	51.6
43	.164	.33	.49	.66	.82	0.98	.15	.31	.48	09.8	19.7	29.5	39.4	49.2
44	.156	.32	.47	.63	.78	.94	.09	.25	.41	9.4	8.8	8.1	7.5	6.9
60 45	15.148	30.30	45.44	60.59	75.75	90.89	106.04	121.18	136.33	908.9	1817.8	2726.7	3635.6	4544.5
46	.141	.28	.42	.56	.71	.84	5.98	.12	.26	8.4	6.9	5.3	3.8	42.2
47	.133	.27	.40	.53	.67	.80	.93	.06	.19	8.0	5.9	3.9	1.8	39.8
48	.125	.25	.38	.50	.63	.75	.87	1.00	.12	7.5	5.0	2.5	30.0	7.5
49	.117	.24	.35	.47	.59	.70	.82	0.93	6.05	7.0	4.0	21.1	28.1	5.1
60 50	15.109	30.22	45.33	60.44	75.55	90.65	105.76	120.87	135.98	906.5	1813.1	2719.6	3626.2	4532.7
51	.101	.20	.30	.41	.51	.61	.71	.81	.91	6.1	2.2	8.2	4.3	30.4
52	.093	.19	.28	.37	.47	.56	.65	.75	.84	5.6	1.2	6.8	2.4	28.0
53	.086	.17	.26	.34	.43	.51	.60	.68	.77	5.1	10.3	5.4	20.6	5.7
54	.078	.16	.23	.31	.39	.47	.54	.62	.70	4.7	09.3	4.0	18.6	3.3
60 55	15.070	30.14	45.21	60.28	75.35	90.42	105.49	120.55	135.62	904.2	1808.4	2712.5	3616.7	4520.9
56	.062	.12	.19	.25	.31	.37	.43	.49	.56	3.7	7.4	11.2	4.9	18.6
57	.054	.11	.16	.22	.27	.32	.38	.43	.48	3.2	6.5	09.7	3.0	6.2
58	.046	.09	.14	.18	.23	.28	.32	.37	.41	2.8	5.6	8.3	11.1	3.9
59	.038	.08	.11	.15	.19	.23	.27	.30	.34	2.3	4.6	6.9	09.2	11.5
60 00	15.030	30.06	45.09	60.12	75.15	90.18	105.21	120.24	135.27	901.8	1803.7	2705.5	3607.3	4509.1

Lat.	Latitude 60° to 61°—Meridional arcs.						Latitude 60°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 60° 30'		Value of 1'	Continuous sums of minutes from latitude 60° 00'		Longitude.	X	Y
° '	Meters.	"	Meters.	Meters.	'	Meters.	° '	Meters.	Meters.
60 00	30.948			1856.91			0 1	930.0	0.1
1	9	1	30.95	.91	1	1 856.9	0 2	1 860.1	0.5
2	9	2	61.90	.92	2	3 713.8	3	2 790.1	1.1
3	9	3	92.85	.92	3	5 570.7	4	3 720.2	1.9
4	9	4	123.80	.93	4	7 427.7	0 5	4 650.2	2.9
60 05	30.949	5	154.75	1856.93	5	9 284.6	0 6	5 580.2	4.2
6	9	6	185.71	.94	6	11 141.5	7	6 510.3	5.7
7	9	7	216.66	.94	7	12 998.5	8	7 440.3	7.5
8	9	8	247.61	.95	8	14 855.4	9	8 370.4	9.5
9	9	9	278.56	.95	9	16 712.4	0 10	9 300.4	11.7
60 10	30.949	10	309.51	1856.96	10	18 569.3	15	13 950.5	26.4
11	9	1	340.46	.96	1	20 426.3	20	18 600.6	46.9
12	49	2	371.41	.97	2	22 283.2	25	23 250.7	73.2
13	50	3	402.36	.97	3	24 140.2	30	27 900.8	105.4
14	0	4	433.31	.98	4	25 997.2	0 35	32 550.8	143.5
60 15	30.950	15	464.26	1856.98	15	27 854.2	40	37 200.8	187.4
16	0	6	495.21	.98	6	29 711.1	45	41 850.7	237.2
17	0	7	526.16	.99	7	31 568.1	50	46 500.6	292.8
18	0	8	557.12	6.99	8	33 425.1	55	51 150.3	354.3
19	0	9	588.07	7.00	9	35 282.1	1 00	55 800.0	421.7
60 20	30.950	20	619.02	1857.00	20	37 139.1	05	60 449.6	494.9
21	0	1	649.97	.01	1	38 996.1	10	65 099.2	574.0
22	0	2	680.92	.01	2	40 853.1	15	69 738.6	658.9
23	0	3	711.87	.02	3	42 710.1	20	74 397.9	749.7
24	0	4	742.82	.02	4	44 567.2	1 25	79 047.0	846.4
60 25	30.950	25	773.77	1857.03	25	46 424.2	30	83 696.1	948.8
26	1	6	804.72	.03	6	48 281.2	35	88 345.0	1 057.1
27	1	7	835.67	.04	7	50 138.2	40	92 993.8	1 171.3
28	1	8	866.62	.04	8	51 995.3	45	97 642.4	1 291.3
29	1	9	897.57	.05	9	53 852.3	1 50	102 290.9	1 417.2
60 30	30.951	30	928.53	1857.05	30	55 709.4	55	106 939.2	1 549.0
31	1	1	959.48	.06	1	57 566.4	00	111 587	1 687
32	1	2	990.43	.06	2	59 423.5	05	167 349	3 795
33	1	3	1 021.38	.07	3	61 280.6	10	223 073	6 745
34	1	4	1 052.33	.07	4	63 137.6	15	278 745	10 538
60 35	30.951	35	1 083.28	1857.07	35	64 994.7	20	334 354	15 172
36	1	6	1 114.23	.08	6	66 851.8	25	389 887	20 645
37	1	7	1 145.18	.08	7	68 708.9	30	445 330	26 957
38	1	8	1 176.13	.09	8	70 566.0	35	500 672	34 107
39	2	9	1 207.08	.09	9	72 423.1	40	555 899	42 092
60 40	30.952	40	1 238.03	1857.10	40	74 280.1	45	611 000	50 911
41	2	1	1 268.98	.10	1	76 137.2	50	665 961	60 562
42	2	2	1 299.94	.11	2	77 994.4	55	720 769	71 043
43	2	3	1 330.89	.11	3	79 851.5	00	775 413	82 350
44	2	4	1 361.84	.12	4	81 708.6	05	829 880	94 482
60 45	30.952	45	1 392.79	1857.12	45	83 565.7	10	884 157	107 436
46	2	6	1 423.74	.13	6	85 422.8	15	938 232	121 209
47	2	7	1 454.69	.13	7	87 280.0	20	992 093	135 798
48	2	8	1 485.64	.14	8	89 137.1	25	1 045 727	151 199
49	2	9	1 516.59	.14	9	90 994.2	30	1 099 123	167 409
60 50	30.952	50	1 547.54	1857.15	50	92 851.4	35	1 152 267	184 424
51	3	1	1 578.49	.15	1	94 708.5	40	1 205 148	202 241
52	3	2	1 609.44	.15	2	96 565.7	45	1 257 753	220 854
53	3	3	1 640.40	.16	3	98 422.8	50	1 310 072	240 261
54	3	4	1 671.35	.16	4	100 280.0	55	1 362 091	260 456
60 55	30.953	55	1 702.30	1857.17	55	102 137.2	00	1 413 798	281 436
56	3	6	1 733.25	.17	6	103 994.3	05	1 465 183	303 194
57	3	7	1 764.20	.18	7	105 851.5	10	1 516 233	325 726
58	3	8	1 795.15	.18	8	107 708.7	15	1 566 937	349 028
59	3	9	1 826.10	.19	9	109 565.9	20	1 617 283	373 093
60 60	30.953	60	1 857.05	1857.19	60	111 423.1	25		

Latitude 61° to 62°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
61 00	15.030	30.06	45.09	60.12	75.15	90.18	105.21	120.24	135.27	901.8	1803.7	2705.5	3607.3	4509.1
1	.023	.05	.07	.09	.11	.14	.16	.18	.20	1.4	2.7	4.1	5.4	6.8
2	.015	.03	.04	.06	.07	.09	.10	.12	.13	0.9	1.8	2.6	3.5	4.4
3	.007	.01	.02	.03	.03	.04	.05	.05	.06	0.00	0.8	1.2	1.6	2.0
4	4.999	30.00	5.00	60.00	4.99	89.99	4.99	19.99	4.99	899.9	799.9	699.8	599.7	499.7
61 05	14.991	29.98	44.97	59.96	74.96	89.95	104.94	119.93	134.91	899.5	1798.9	2698.4	3597.9	4497.3
5	.983	.97	.95	.93	.92	.90	.88	.87	.85	9.0	8.0	7.0	6.0	5.0
6	.975	.95	.93	.90	.88	.85	.83	.80	.78	8.5	7.0	5.6	4.1	2.6
7	.967	.93	.90	.87	.84	.80	.77	.74	.70	8.0	6.1	4.1	2.2	90.2
8	.960	.92	.88	.84	.80	.76	.72	.67	.63	7.6	5.1	2.7	90.3	87.9
61 10	14.952	29.90	44.85	59.81	74.76	89.71	104.66	119.61	134.56	897.1	1794.2	2691.3	3588.4	4485.5
11	.944	.89	.83	.78	.72	.66	.61	.55	.49	6.6	3.3	89.9	6.5	3.1
12	.936	.87	.81	.74	.68	.62	.55	.49	.42	6.2	2.3	8.5	4.6	80.8
13	.928	.86	.78	.71	.64	.57	.50	.42	.35	5.7	1.4	7.0	2.7	78.4
14	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	90.4	5.6	80.8	6.0
61 15	14.912	29.82	44.74	59.65	74.56	89.47	104.39	119.30	134.21	894.7	1789.5	2684.2	3578.9	4473.6
16	.904	.81	.71	.62	.52	.43	.33	.23	.14	4.3	8.5	2.8	7.0	71.3
17	.896	.79	.69	.59	.48	.38	.28	.17	4.06	3.8	7.6	81.3	5.1	68.9
18	.888	.78	.67	.55	.44	.33	.22	.11	3.99	3.3	6.6	79.9	3.2	6.5
19	.881	.76	.64	.52	.40	.28	.17	9.04	.92	2.8	5.7	8.5	71.3	4.2
61 20	14.873	29.75	44.62	59.49	74.36	89.24	104.11	118.98	133.85	892.4	1784.7	2677.1	3569.4	4461.8
21	.865	.73	.59	.46	.32	.19	.06	.92	.78	1.9	3.8	5.7	7.5	59.4
22	.857	.71	.57	.43	.28	.14	4.00	.85	.71	1.4	2.8	4.2	5.6	7.1
23	.849	.70	.55	.40	.24	.09	3.95	.79	.64	0.9	1.9	2.8	3.7	4.7
24	.841	.68	.52	.36	.20	.05	.89	.73	.57	0.5	0.9	1.4	1.9	52.3
61 25	14.833	29.67	44.50	59.33	74.17	89.00	103.84	118.67	133.50	890.0	1780.0	2670.0	3560.0	4449.9
26	.825	.65	.48	.30	.13	8.95	.78	.60	.43	89.5	79.0	68.6	58.1	7.6
27	.817	.63	.45	.27	.09	.90	.72	.54	.35	9.0	8.1	7.1	6.2	5.2
28	.809	.62	.43	.24	.05	.86	.67	.48	.28	8.6	7.1	5.7	4.3	2.8
29	.802	.60	.40	.21	4.01	.81	.62	.41	.21	8.1	6.2	4.3	2.4	40.5
61 30	14.794	29.59	44.38	59.17	73.97	88.76	103.56	118.35	133.14	887.6	1775.2	2662.9	3550.5	4438.1
31	.786	.57	.36	.14	.93	.71	.50	.29	.07	7.1	4.3	1.4	48.6	5.7
32	.778	.56	.33	.11	.89	.67	.45	.22	3.00	6.7	3.3	60.0	6.7	3.3
33	.770	.54	.31	.08	.85	.62	.39	.16	2.93	6.2	2.4	58.6	4.8	31.0
34	.762	.52	.29	.05	.81	.57	.34	.10	.86	5.7	1.4	7.1	2.9	28.6
61 35	14.754	29.51	44.26	59.02	73.77	88.52	103.28	118.03	132.78	885.2	1770.5	2655.7	3541.0	4426.2
36	.746	.49	.24	8.98	.73	.48	.22	7.97	.71	4.8	69.5	4.3	39.1	3.8
37	.738	.48	.21	.95	.69	.43	.17	.91	.64	4.3	8.6	2.9	7.2	21.5
38	.730	.46	.19	.92	.65	.38	.11	.84	.57	3.8	7.6	1.4	5.3	19.1
39	.722	.44	.17	.89	.61	.33	.06	.78	.50	3.3	6.7	50.0	3.4	6.7
61 40	14.714	29.43	44.14	58.86	73.57	88.29	103.00	117.72	132.43	882.9	1765.7	2648.6	3531.5	4414.3
41	.706	.41	.12	.83	.53	.24	2.95	.65	.36	2.4	4.8	7.2	29.6	11.9
42	.699	.40	.10	.79	.49	.19	.89	.59	.29	1.9	3.8	5.7	7.7	09.6
43	.691	.38	.07	.76	.45	.14	.84	.53	.22	1.4	2.9	4.3	5.8	7.2
44	.683	.37	.05	.73	.41	.10	.78	.46	.15	1.0	1.9	2.9	3.8	4.8
61 45	14.675	29.35	44.02	58.70	73.38	88.05	102.73	117.40	132.07	880.5	1761.0	2641.5	3521.9	4402.4
46	.667	.33	4.00	.67	.34	8.00	.67	.33	2.00	80.0	60.0	40.0	20.0	400.0
47	.659	.32	3.98	.64	.30	7.95	.61	.27	1.93	79.5	59.1	38.6	18.1	397.7
48	.651	.30	.95	.60	.26	.91	.56	.21	.86	9.1	8.1	7.2	6.2	5.3
49	.643	.29	.93	.57	.22	.86	.51	.14	.79	8.6	7.2	5.7	4.3	2.9
61 50	14.635	29.27	43.91	58.54	73.18	87.81	102.45	117.08	131.72	878.1	1756.2	2634.3	3512.4	4390.5
51	.627	.25	.88	.51	.14	.76	.39	.70	.65	7.6	5.2	2.9	10.5	88.1
52	.619	.24	.86	.48	.10	.72	.34	6.95	.58	7.2	4.3	1.5	08.6	5.8
53	.611	.22	.83	.44	.06	.67	.28	.89	.50	6.7	3.3	30.0	6.7	3.4
54	.603	.21	.81	.41	3.02	.62	.23	.83	.43	6.2	2.4	28.6	4.8	81.0
61 55	14.595	29.19	43.79	58.38	72.98	87.57	102.17	116.76	131.36	875.7	1751.4	2627.2	3502.9	4378.6
56	.587	.17	.76	.35	.94	.52	.11	.70	.29	5.2	50.5	5.7	501.0	6.2
57	.579	.16	.74	.32	.90	.48	.06	.64	.22	4.8	49.5	4.3	499.1	3.8
58	.572	.14	.72	.29	.86	.43	2.00	.57	.14	4.3	8.6	2.9	7.2	71.5
59	.564	.13	.69	.25	.82	.38	1.95	.51	.07	3.8	7.6	1.4	5.3	69.1
61 60	14.556	29.11	43.67	58.22	72.78	87.33	101.89	116.44	131.00	873.3	1746.7	2620.0	3493.4	4366.7

Lat.	Latitude 61° to 62°—Meridional arcs.						Latitude 61°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 61° 30'		Value of 1'	Continuous sums of minutes from latitude 61° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
61 00	30.953			1857.19			0 1	901.8	0.1
1	3	1	30.96	.20	1	1 857.2	0 2	1 803.7	0.5
2	3	2	61.91	.20	2	3 714.4	3	2 705.5	1.0
3	3	3	92.87	.21	3	5 571.6	4	3 607.3	1.8
4	4	4	123.82	.21	4	7 428.8			
61 05	30.954	5	154.78	1857.22	5	9 286.0	0 5	4 509.1	2.9
6	4	6	185.73	.22	6	11 143.2	6	5 411.0	4.1
7	4	7	216.69	.22	7	13 000.5	7	6 312.8	5.6
8	4	8	247.64	.23	8	14 857.7	8	7 214.6	7.3
9	4	9	278.60	.23	9	16 714.9	9	8 116.4	9.3
61 10	30.954	10	309.56	1857.24	10	18 572.2	0 10	9 018.3	11.5
11	4	1	340.51	.24	1	20 429.4	15	13 527.4	25.8
12	4	2	371.47	.25	2	22 286.6	20	18 036.5	45.9
13	4	3	402.42	.25	3	24 143.9	25	22 545.5	71.7
14	4	4	433.38	.26	4	26 001.1	30	27 054.5	103.2
61 15	30.954	15	464.33	1857.26	15	27 858.4	0 35	31 563.5	140.5
16	4	6	495.29	.27	6	29 715.7	40	36 072.5	183.5
17	5	7	526.24	.27	7	31 572.9	45	40 581.3	232.3
18	5	8	557.20	.28	8	33 430.2	50	45 090.1	286.8
19	5	9	588.15	.28	9	35 287.5	55	49 598.9	347.0
61 20	30.955	20	619.11	1857.29	20	37 144.8	1 00	54 107.5	413.0
21	5	1	650.07	.29	1	39 002.1	05	58 616.1	484.7
22	5	2	681.02	.29	2	40 859.3	10	63 124.5	562.1
23	5	3	711.98	.30	3	42 716.6	15	67 632.9	645.3
24	5	4	742.93	.30	4	44 573.9	20	72 141.2	734.2
61 25	30.955	25	773.89	1857.31	25	46 431.2	1 25	76 649.3	828.8
26	5	6	804.84	.31	6	48 288.6	30	81 157.3	929.2
27	5	7	835.80	.32	7	50 145.9	35	85 665.2	1 035.3
28	5	8	866.75	.32	8	52 003.2	40	90 172.9	1 147.1
29	5	9	897.71	.33	9	53 860.5	45	94 680.5	1 264.6
61 30	30.956	30	928.67	1857.33	30	55 717.8	1 50	99 188.0	1 388.0
31	6	1	959.62	.34	1	57 575.2	55	103 695.3	1 517.1
32	6	2	990.58	.34	2	59 432.5	2 00	108 202	1 652
33	6	3	1 021.53	.35	3	61 289.9	3 00	162 271	3 716
34	6	4	1 052.49	.35	4	63 147.2	4 00	216 304	6 606
61 35	30.956	35	1 083.44	1857.35	35	65 004.6	5 00	270 285	10 320
36	6	6	1 114.40	.36	6	66 861.9	6 00	324 204	14 857
37	6	7	1 145.35	.36	7	68 719.3	7 00	378 047	20 217
38	6	8	1 176.31	.37	8	70 576.7	8 00	431 802	26 399
39	6	9	1 207.27	.37	9	72 434.0	9 00	485 456	33 400
61 40	30.956	40	1 238.22	1857.38	40	74 291.4	10 00	538 997	41 219
41	6	1	1 269.18	.38	1	76 148.8	11 00	592 413	49 855
42	6	2	1 300.13	.39	2	78 006.2	12 00	645 690	59 305
43	7	3	1 331.09	.39	3	79 863.6	13 00	698 817	69 567
44	7	4	1 362.04	.40	4	81 721.0	14 00	751 781	80 639
61 45	30.957	45	1 393.00	1857.40	45	83 578.4	15 00	804 570	92 518
46	7	6	1 423.95	.41	6	85 435.8	16 00	857 172	105 201
47	7	7	1 454.91	.41	7	87 293.2	17 00	909 574	118 686
48	7	8	1 485.87	.41	8	89 150.6	18 00	961 764	132 069
49	7	9	1 516.82	.42	9	91 008.0	19 00	1 013 729	148 048
61 50	30.957	50	1 547.78	1857.42	50	92 865.4	20 00	1 065 459	163 917
51	7	1	1 578.73	.43	1	94 722.8	21 00	1 116 940	180 575
52	7	2	1 609.69	.43	2	96 580.3	22 00	1 168 161	198 016
53	7	3	1 640.64	.44	3	98 437.7	23 00	1 219 110	216 237
54	7	4	1 671.60	.44	4	100 295.2	24 00	1 269 775	235 234
61 55	30.957	55	1 702.55	1857.45	55	102 152.6	25 00	1 320 144	255 002
56	8	6	1 733.51	.45	6	104 010.0	26 00	1 370 205	275 537
57	8	7	1 764.46	.46	7	105 867.5	27 00	1 419 947	296 833
58	8	8	1 795.42	.46	8	107 725.0	28 00	1 469 358	318 886
59	8	9	1 826.38	.46	9	109 582.4	29 00	1 518 426	341 691
61 60	30.958	60	1 857.33	1857.47	60	111 439.9	30 00	1 567 141	365 242

Latitude 62° to 63°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
62 00	14.556	29.11	43.67	58.22	72.78	87.33	101.89	116.45	131.00	873.3	1746.7	2620.0	3493.4	4366.7
01	.548	.10	.64	.19	.74	.29	.83	.38	0.93	2.9	5.7	18.6	91.4	4.3
02	.540	.08	.62	.16	.70	.24	.78	.32	.86	2.4	4.8	7.2	89.5	61.9
03	.532	.06	.60	.13	.66	.19	.72	.25	.79	1.9	3.8	5.7	7.6	59.5
04	.524	.05	.57	.10	.62	.14	.67	.19	.72	1.4	2.9	4.3	5.7	7.1
62 05	14.516	29.03	43.55	58.06	72.58	87.10	101.61	116.13	130.65	871.0	1741.9	2612.9	3483.8	4354.8
06	.508	.02	.52	.03	.54	.05	.55	.06	.57	0.5	0.9	1.4	1.9	2.4
07	.500	9.00	.50	8.00	.50	7.00	.50	6.00	.50	70.0	40.0	10.0	80.0	50.0
08	.492	8.98	.48	7.97	.46	6.95	.44	5.94	.43	69.5	39.0	08.6	78.1	47.6
09	.484	.97	.45	.94	.42	.90	.89	.87	.35	9.0	8.1	7.1	6.2	5.2
62 10	14.476	28.95	43.43	57.90	72.38	86.86	101.33	115.81	130.28	868.6	1737.1	2605.7	3474.3	4342.8
11	.468	.94	.40	.87	.34	.81	.28	.74	.21	8.1	6.1	4.3	2.3	40.4
12	.460	.92	.38	.84	.30	.76	.22	.68	.14	7.6	5.2	2.8	70.4	38.0
13	.452	.90	.36	.81	.26	.71	.17	.62	.07	7.1	4.2	1.4	68.5	5.6
14	.444	.89	.33	.78	.22	.67	.11	.55	30.00	6.7	3.3	600.0	6.6	3.3
62 15	14.436	28.87	43.31	57.74	72.18	86.62	101.05	115.49	129.93	866.2	1732.3	2598.5	3464.7	4330.9
16	.428	.86	.29	.71	.14	.57	1.00	.43	.85	5.7	1.4	7.1	2.8	28.5
17	.420	.84	.26	.68	.10	.52	0.94	.36	.78	5.2	30.4	5.6	60.9	6.1
18	.412	.82	.24	.65	.06	.47	.89	.30	.71	4.7	29.5	4.2	59.0	3.7
19	.404	.81	.21	.62	2.02	.43	.83	.23	.64	4.3	8.5	2.8	7.0	21.3
62 20	14.396	28.79	43.19	57.59	71.98	86.38	100.78	115.17	129.57	863.8	1727.6	2591.3	3455.1	4318.9
21	.388	.78	.17	.55	.94	.33	.72	.11	.50	3.3	6.6	89.9	3.2	6.5
22	.380	.76	.14	.52	.90	.28	.67	5.04	.43	2.8	5.7	8.5	51.3	4.1
23	.372	.74	.12	.49	.86	.23	.61	4.98	.35	2.3	4.7	7.0	49.4	11.7
24	.364	.73	.09	.46	.82	.19	.56	.92	.28	1.9	3.8	5.6	7.5	09.3
62 25	14.356	28.71	43.07	57.43	71.78	86.14	100.50	114.85	129.21	861.4	1722.8	2584.2	3445.6	4306.9
26	.348	.70	.05	.39	.74	.09	.44	.79	.14	0.9	1.8	2.7	3.6	4.5
27	.340	.68	.02	.36	.70	.04	.39	.72	9.07	0.4	20.9	81.3	41.7	302.1
28	.333	.67	3.00	.33	.66	6.00	.33	.66	8.99	60.0	19.9	79.9	39.8	299.8
29	.325	.65	2.97	.30	.62	5.95	.28	.60	.92	59.5	9.0	8.4	7.9	7.4
62 30	14.317	28.63	42.95	57.27	71.58	85.90	100.22	114.53	128.85	859.0	1718.0	2577.0	3436.0	4295.0
31	.309	.62	.93	.23	.54	.85	.16	.47	.78	8.5	7.0	5.5	4.1	2.6
32	.301	.60	.90	.20	.50	.80	.11	.40	.71	8.0	6.1	4.1	2.1	90.2
33	.293	.59	.88	.17	.46	.76	.05	.34	.63	7.6	5.1	2.7	30.2	87.8
34	.285	.57	.85	.14	.42	.71	100.00	.28	.56	7.1	4.2	71.2	28.3	5.4
62 35	14.277	28.55	42.83	57.11	71.38	85.66	99.94	114.21	128.49	856.6	1713.2	2569.8	3426.4	4283.0
36	.269	.54	.81	.07	.34	.61	.88	.15	.42	6.1	2.2	8.3	4.5	80.6
37	.261	.52	.78	.04	.30	.56	.83	.08	.35	5.6	1.3	6.9	2.5	78.2
38	.253	.51	.76	7.01	.26	.52	.77	4.02	.27	5.2	10.3	5.5	20.6	5.8
39	.245	.49	.73	6.98	.22	.47	.72	3.96	.20	4.7	09.4	4.0	18.7	3.4
62 40	14.237	28.47	42.71	56.95	71.18	85.42	99.66	113.89	128.13	854.2	1708.4	2562.6	3416.8	4271.0
41	.229	.45	.69	.91	.14	.36	.60	.83	8.06	3.6	7.4	61.1	4.9	68.6
42	.221	.44	.66	.88	.10	.32	.55	.76	7.99	3.2	6.5	59.7	2.9	6.2
43	.213	.43	.64	.85	.06	.28	.49	.70	.91	2.8	5.5	8.3	11.0	3.8
44	.205	.41	.61	.82	1.02	.23	.44	.64	.84	2.3	4.6	6.8	09.1	61.4
62 45	14.197	28.39	42.59	56.79	70.98	85.18	99.38	113.57	127.77	851.8	1703.6	2555.4	3407.2	4259.0
46	.189	.38	.57	.75	.94	.13	.32	.51	.70	1.3	2.6	3.9	5.3	6.6
47	.181	.36	.54	.72	.90	.08	.27	.44	.63	0.8	1.7	2.5	3.3	4.2
48	.173	.35	.52	.69	.86	5.04	.21	.38	.55	50.4	700.7	51.1	401.4	51.8
49	.165	.33	.49	.66	.82	4.99	.16	.32	.48	49.9	699.8	49.6	399.5	49.4
62 50	14.157	28.31	42.47	56.63	70.78	84.94	99.10	113.25	127.41	849.4	1698.8	2548.2	3397.6	4247.0
51	.149	.30	.45	.59	.74	.89	9.04	.19	.34	8.9	7.8	6.7	5.6	4.6
52	.140	.28	.42	.56	.70	.84	8.99	.12	.27	8.4	6.9	5.3	3.7	42.1
53	.132	.26	.40	.53	.66	.79	.93	.06	.19	7.9	5.9	3.8	91.8	39.7
54	.124	.25	.37	.50	.62	.75	.87	3.00	.12	7.5	5.0	2.4	89.9	7.3
62 55	14.116	28.23	42.35	56.47	70.58	84.70	98.82	112.93	127.05	847.0	1694.0	2541.0	3387.9	4234.9
56	.108	.22	.33	.43	.54	.65	.76	.87	6.98	6.5	3.0	39.5	6.0	2.5
57	.100	.20	.30	.40	.50	.60	.70	.80	.91	6.0	2.1	8.1	4.1	30.1
58	.092	.18	.28	.37	.46	.55	.64	.74	.83	5.5	1.1	6.6	2.2	27.7
59	.084	.17	.25	.34	.42	.51	.59	.67	.76	5.1	90.2	5.2	80.2	5.3
62 60	14.076	28.15	42.23	56.31	70.38	84.46	98.53	112.61	126.69	844.6	1689.2	2533.7	3378.3	4222.9

Lat.	Latitude 62° to 63°—Meridional arcs.						Latitude 62°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 62° 30'		Value of 1'	Continuous sums of minutes from latitude 62° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
62 00	30.958			1857.47			0 1	873.3	0.1
1	8	1	30.96	.47	1	1857.5	0 2	1746.7	0.4
2	8	2	61.92	.48	2	3714.9	3	2620.0	1.0
3	8	3	92.88	.48	3	5572.4	4	3493.4	1.8
4	8	4	123.84	.49	4	7429.9	0 5	4366.7	2.8
62 05	30.958	5	154.80	1857.49	5	9287.4	0 6	5240.0	4.0
6	8	6	185.76	.50	6	11144.9	7	6113.4	5.5
7	8	7	216.72	.50	7	13002.4	8	6986.7	7.2
8	8	8	247.68	.51	8	14859.9	9	7860.0	9.1
9	9	9	278.64	.51	9	16717.4	0 10	8733.4	11.2
62 10	30.959	10	309.60	1857.52	10	18574.9	15	13100.1	25.2
11	9	1	340.56	.52	1	20432.5	20	17466.7	44.9
12	9	2	371.52	.52	2	22290.0	25	21833.3	70.1
13	9	3	402.48	.53	3	24147.5	30	26199.9	100.9
14	9	4	433.44	.53	4	26005.0	0 35	30566.4	137.4
62 15	30.959	15	464.40	1857.54	15	27862.6	40	34932.9	179.5
16	9	5	495.36	.54	5	29720.1	45	39299.4	227.1
17	9	6	526.32	.55	6	31577.7	50	43665.7	280.4
18	9	7	557.28	.55	7	33435.2	55	48032.0	339.3
19	9	8	588.24	.56	8	35292.8	0 00	52398.3	403.8
62 20	30.959	20	619.20	1857.56	20	37150.3	05	56764.3	473.8
21	9	1	650.16	.57	1	39007.9	10	61130.4	549.5
22	59	2	681.12	.57	2	40865.5	15	65496.4	630.8
23	60	3	712.08	.57	3	42723.0	20	69862.2	717.7
24	0	4	743.04	.58	4	44580.6	0 25	74227.9	810.3
62 25	30.960	25	774.00	1857.58	25	46438.2	30	78593.5	908.4
26	0	5	804.96	.59	5	48295.8	35	82959.0	1012.1
27	0	6	835.92	.59	6	50153.4	40	87324.3	1121.5
28	0	7	866.88	.60	7	52011.0	45	91689.5	1236.4
29	0	8	897.84	.60	8	53868.6	0 50	96054.5	1357.0
62 30	30.960	30	928.80	1857.61	30	55726.2	55	100419.4	1483.1
31	0	1	959.76	.61	1	57583.8	00	104784	1615
32	0	2	990.72	.61	2	59441.4	05	157145	3633
33	0	3	1021.68	.62	3	61299.0	10	209469	6458
34	0	4	1052.64	.62	4	63156.6	0 15	261742	10089
62 35	30.960	35	1083.60	1857.63	35	65014.2	20	313954	14525
36	1	5	1114.56	.63	5	66871.9	25	366091	19765
37	1	6	1145.52	.64	6	68729.5	30	418142	25807
38	1	7	1176.48	.64	7	70587.1	35	470093	32652
39	1	8	1207.44	.65	8	72444.8	0 40	521932	40296
62 40	30.961	40	1238.40	1857.65	40	74302.4	45	573647	48737
41	1	1	1269.36	.66	1	76160.1	50	625226	57975
42	1	2	1300.32	.66	2	78017.7	55	676657	68006
43	1	3	1331.28	.66	3	79875.4	00	727927	78829
44	1	4	1362.24	.67	4	81733.1	05	779024	90441
62 45	30.961	45	1393.20	1857.67	45	83590.7	10	829936	102838
46	1	5	1424.16	.68	5	85448.4	15	880651	116019
47	1	6	1455.12	.68	6	87306.1	20	931157	129980
48	1	7	1486.08	.69	7	89163.8	25	981442	144717
49	2	8	1517.04	.69	8	91021.5	0 30	1031494	160227
62 50	30.962	50	1548.00	1857.70	50	92879.2	35	1081300	176507
51	2	1	1578.96	.70	1	94736.9	40	1130850	193552
52	2	2	1609.93	.70	2	96594.6	45	1180132	211359
53	2	3	1640.89	.71	3	98452.3	50	1229133	229923
54	2	4	1671.85	.71	4	100310.1	0 55	1277842	249240
62 55	30.962	55	1702.81	1857.72	55	102167.8	00	1326248	269306
56	2	5	1733.77	.72	5	104025.5	05	1374339	290114
57	2	6	1764.73	.73	6	105883.2	10	1422103	311662
58	2	7	1795.69	.73	7	107741.0	15	1469530	333943
59	2	8	1826.65	.74	8	109598.7	20	1516608	356952
62 60	30.962	60	1857.61	1857.74	60	111456.4	25		

Latitude 63° to 64°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
63 00	14.076	28.15	42.23	56.31	70.38	84.46	98.53	112.61	126.69	844.6	1689.2	2533.7	3378.3	4222.9
1	.068	.14	.21	.28	.34	.41	.47	.55	.62	4.1	8.2	2.3	6.4	20.5
2	.060	.12	.18	.24	.30	.36	.42	.48	.54	3.6	7.2	30.9	4.5	18.1
3	.052	.10	.16	.21	.26	.31	.36	.42	.47	3.1	6.3	29.4	2.6	5.7
4	.044	.09	.13	.18	.22	.27	.31	.35	.40	2.7	5.3	8.0	70.6	3.3
63 05	14.036	28.07	42.11	56.14	70.18	84.22	98.25	112.29	126.32	842.2	1684.4	2526.5	3368.7	4210.9
6	.028	.05	.08	.11	.14	.17	.19	.23	.25	1.7	3.4	5.0	6.8	08.4
7	.020	.04	.06	.08	.10	.12	.14	.16	.18	1.2	2.4	3.6	4.8	6.0
8	.012	.02	.04	.05	.06	.07	.08	.10	.11	0.7	1.4	2.2	2.9	3.6
9	.004	8.01	2.01	6.02	70.02	4.02	8.03	2.03	6.04	40.2	80.5	20.7	61.0	201.2
63 10	13.996	27.99	41.99	55.98	69.98	83.98	97.97	111.97	125.96	839.8	1679.5	2519.3	3359.0	4198.8
11	.988	.97	.96	.95	.94	.93	.91	.91	.89	9.3	8.6	7.8	7.1	6.4
12	.980	.96	.94	.92	.90	.88	.86	.84	.82	8.8	7.6	6.4	5.2	4.0
13	.972	.94	.92	.89	.86	.83	.80	.78	.75	8.3	6.6	5.0	3.3	91.6
14	.964	.93	.89	.86	.82	.78	.75	.71	.68	7.8	5.7	3.5	51.3	89.2
63 15	13.956	27.91	41.87	55.82	69.78	83.73	97.69	111.65	125.60	837.3	1674.7	2512.0	3349.4	4186.7
16	.948	.89	.84	.79	.74	.69	.63	.58	.53	6.9	3.7	10.6	7.5	4.3
17	.940	.88	.82	.76	.70	.64	.58	.52	.46	6.4	2.8	09.1	5.5	81.9
18	.932	.86	.80	.73	.66	.59	.52	.45	.38	5.9	1.8	7.7	3.6	79.5
19	.924	.85	.77	.69	.62	.54	.47	.39	.31	5.4	70.8	6.3	41.7	7.1
63 20	13.916	27.83	41.75	55.66	69.58	83.49	97.41	111.32	125.24	834.9	1669.9	2504.8	3339.8	4174.7
21	.908	.81	.72	.63	.54	.45	.35	.26	.17	4.5	8.9	3.4	7.8	72.3
22	.900	.80	.70	.60	.50	.40	.30	.19	.10	4.0	8.0	1.9	5.9	69.9
23	.891	.78	.67	.57	.46	.35	.24	.13	5.02	3.5	7.0	500.4	3.9	7.4
24	.883	.77	.65	.53	.42	.30	.18	.07	4.95	3.0	6.0	499.0	2.0	5.0
63 25	13.875	27.75	41.63	55.50	69.38	83.25	97.13	111.00	124.88	832.5	1665.0	2497.6	3330.1	4162.6
26	.867	.73	.60	.47	.34	.20	.07	0.94	.81	2.0	4.0	6.1	28.2	60.2
27	.859	.72	.58	.44	.30	.16	7.02	.87	.74	1.6	3.1	4.7	6.2	57.8
28	.851	.70	.55	.40	.26	.11	6.96	.81	.66	1.1	2.2	3.2	4.3	5.4
29	.843	.69	.53	.37	.22	.06	.91	.74	.59	0.6	1.2	1.7	2.3	2.9
63 30	13.835	27.67	41.51	55.34	69.18	83.01	96.85	110.68	124.52	830.1	1660.2	2490.3	3320.4	4150.5
31	.827	.65	.48	.31	.14	2.96	.79	.62	.45	29.6	59.2	88.9	18.5	48.1
32	.819	.64	.46	.28	.10	.91	.74	.55	.37	9.1	8.3	7.4	6.6	5.7
33	.811	.62	.43	.24	.06	.87	.68	.49	.30	8.7	7.3	6.0	4.6	3.3
34	.803	.61	.41	.21	9.02	.82	.62	.42	.23	8.2	6.3	4.5	2.7	40.8
63 35	13.795	27.59	41.38	55.18	68.97	82.77	96.56	110.35	124.15	827.7	1655.4	2483.0	3310.7	4138.4
36	.787	.57	.36	.15	.93	.72	.51	.30	.08	7.2	4.4	1.6	08.8	6.0
37	.779	.56	.34	.12	.89	.67	.45	.23	4.01	6.7	3.4	80.2	6.9	3.6
38	.771	.54	.31	.08	.85	.62	.39	.17	3.94	6.2	2.5	78.7	5.0	31.2
39	.762	.53	.29	.05	.81	.57	.34	.10	.86	5.7	1.5	7.2	3.0	28.7
63 40	13.754	27.51	41.26	55.02	68.77	82.53	96.28	110.04	123.79	825.3	1650.5	2475.8	3301.0	4126.3
41	.746	.49	.24	4.99	.73	.48	.22	09.97	.71	4.8	49.6	4.3	299.1	3.9
42	.738	.48	.21	.95	.69	.43	.17	.91	.64	4.3	8.6	2.9	7.2	21.5
43	.730	.46	.19	.92	.65	.38	.11	.84	.57	3.8	7.6	1.4	5.2	19.0
44	.722	.45	.17	.89	.61	.33	.06	.78	.50	3.3	6.6	70.0	3.3	6.6
63 45	13.714	27.43	41.14	54.86	68.57	82.28	96.00	109.71	123.43	822.8	1645.7	2468.5	3291.4	4114.2
46	.706	.41	.12	.82	.53	.24	5.94	.65	.35	2.4	4.7	7.1	89.4	11.8
47	.698	.40	.09	.79	.49	.19	.89	.58	.28	1.9	3.8	5.6	7.5	09.4
48	.690	.38	.07	.76	.45	.14	.83	.52	.21	1.4	2.8	4.1	5.5	6.9
49	.682	.36	.04	.73	.41	.09	.77	.45	.13	0.9	1.8	2.7	3.6	4.5
63 50	13.674	27.35	41.02	54.69	68.37	82.04	95.72	109.39	123.06	820.4	1640.8	2461.3	3281.7	4102.1
51	.666	.33	1.00	.66	.33	1.99	.66	.33	2.99	19.9	39.9	59.8	79.8	099.7
52	.657	.31	0.97	.63	.29	.94	.60	.26	.92	9.4	8.9	8.3	7.8	7.2
53	.649	.30	.95	.60	.25	.90	.55	.20	.84	9.0	7.9	6.9	5.8	4.8
54	.641	.28	.92	.56	.21	.85	.49	.13	.77	8.5	7.0	5.4	3.9	92.4
63 55	13.633	27.27	40.90	54.53	68.16	81.80	95.43	109.06	122.70	818.0	1636.0	2453.9	3271.9	4089.9
56	.625	.25	.88	.50	.12	.75	.38	9.00	.62	7.5	5.0	2.5	70.0	7.5
57	.617	.23	.85	.47	.08	.70	.32	8.94	.55	7.0	4.0	51.1	68.1	5.1
58	.609	.22	.83	.44	.04	.66	.25	.87	.48	6.5	3.1	49.6	6.2	2.7
59	.601	.20	.80	.40	8.00	.61	.20	.81	.41	6.1	2.1	8.1	4.2	80.2
63 60	13.593	27.19	40.78	54.37	67.96	81.56	95.15	108.74	122.33	815.6	1631.1	2446.7	3262.2	4077.8

Lat.	Latitude 63° to 64°—Meridional arcs.						Latitude 63°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 63° 30'		Value of 1'	Continuous sums of minutes from latitude 63° 00'		Longitude.	X	Y
° ' "	Meters.	''	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
63 00	30.962			1857.74			0 1	844.6	0.1
1		1	30.96	.74	1	1 857.7	2	1 689.2	0.4
2		2	61.93	.75	2	3 715.5	3	2 533.7	1.0
3		3	92.89	.75	3	5 573.2	4	3 378.3	1.7
4		4	123.86	.76	4	7 431.0	5	4 222.9	2.7
63 05	30.963	5	154.82	1857.76	5	9 288.8	6	5 067.5	3.9
6		6	185.79	.77	6	11 146.5	7	5 912.1	5.4
7		7	216.75	.77	7	13 004.3	8	6 756.6	7.0
8		8	247.72	.78	8	14 862.1	9	7 601.2	8.9
9		9	278.68	.78	9	16 719.8			
63 10	30.963	10	309.65	1857.78	10	18 577.6	0 10	8 445.8	11.0
11		1	340.61	.79	1	20 435.4	15	12 668.7	21.6
12		2	371.57	.79	2	22 293.2	20	16 891.6	43.8
13		3	402.54	.80	3	24 151.0	25	21 114.4	68.4
14		4	433.50	.80	4	26 008.8	30	25 337.2	98.5
63 15	30.963	15	464.47	1857.81	15	27 866.6	0 35	29 559.9	134.1
16		5	495.43	.81	5	29 724.4	40	33 782.6	175.1
17		6	526.40	.82	6	31 582.2	45	38 005.3	221.6
18		7	557.36	.82	7	33 440.0	50	42 227.9	273.6
19		8	588.33	.82	8	35 297.9	55	46 450.4	331.1
63 20	30.964	20	619.29	1857.83	20	37 155.7	1 00	50 672.8	394.0
21		1	650.26	.83	1	39 013.5	05	54 895.2	462.4
22		2	681.22	.84	2	40 871.4	10	59 117.4	536.3
23		3	712.18	.84	3	42 729.2	15	63 339.6	615.6
24		4	743.15	.85	4	44 587.0	20	67 561.6	700.4
63 25	30.964	25	774.11	1857.85	25	46 444.9	1 25	71 783.6	790.7
26		5	805.08	.86	5	48 302.7	30	76 005.4	886.5
27		6	836.04	.86	6	50 160.6	35	80 227.1	987.7
28		7	867.01	.86	7	52 018.5	40	84 448.6	1 094.4
29		8	897.98	.87	8	53 876.3	45	88 670.1	1 206.6
63 30	30.965	30	928.94	1857.87	30	55 734.2	1 50	92 891.3	1 324.2
31		1	959.90	.88	1	57 592.1	55	97 112.5	1 447.4
32		2	990.87	.88	2	59 450.0	2 00	101 333	1 576
33		3	1 021.83	.89	3	61 307.9	3 00	151 970	3 546
34		4	1 052.80	.89	4	63 165.7	4 00	202 569	6 302
63 35	30.965	35	1 083.76	1857.90	35	65 023.6	5 00	253 119	9 846
36		5	1 114.72	.90	5	66 881.5	6 00	303 608	14 175
37		6	1 145.69	.90	6	68 739.4	7 00	354 024	19 288
38		7	1 176.65	.91	7	70 597.3	8 00	404 354	25 185
39		8	1 207.62	.91	8	72 455.2	9 00	454 586	31 864
63 40	30.965	40	1 238.58	1857.92	40	74 313.2	10 00	504 709	39 323
41		1	1 269.55	.92	1	76 171.1	11 00	554 709	47 561
42		2	1 300.51	.93	2	78 029.0	12 00	604 575	56 575
43		3	1 331.48	.93	3	79 886.9	13 00	654 295	66 363
44		4	1 362.44	.94	4	81 744.9	14 00	703 857	76 924
63 45	30.966	45	1 393.41	1857.94	45	83 602.8	15 00	753 249	88 254
46		5	1 424.37	.94	5	85 460.7	16 00	802 458	100 350
47		6	1 455.33	.95	6	87 318.7	17 00	851 473	113 211
48		7	1 486.30	.95	7	89 176.6	18 00	900 283	126 832
49		8	1 517.26	.96	8	91 034.6	19 00	948 874	141 210
63 50	30.966	50	1 548.23	1857.96	50	92 892.6	20 00	997 237	156 343
51		1	1 579.19	.97	1	94 750.5	21 00	1 045 358	172 225
52		2	1 610.16	.97	2	96 608.5	22 00	1 093 226	188 854
53		3	1 641.12	.97	3	98 466.5	23 00	1 140 830	206 225
54		4	1 672.09	.98	4	100 324.4	24 00	1 188 158	224 335
63 55	30.966	55	1 703.05	1857.98	55	102 182.4	25 00	1 235 199	243 178
56		5	1 734.02	.99	5	104 040.4	26 00	1 281 941	262 750
57		6	1 764.98	7.99	6	105 898.4	27 00	1 328 373	283 047
58		7	1 795.94	8.00	7	107 756.4	28 00	1 374 483	304 064
59		8	1 826.91	.00	8	109 614.4	29 00	1 420 262	325 795
63 60	30.967	60	1 857.87	1858.00	60	111 472.4	30 00	1 465 696	348 235

Latitude 64° to 65°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
64 00	13.593	27.19	40.78	54.37	67.96	81.56	95.15	108.74	122.33	815.6	1631.1	2446.7	3262.2	4077.8
01	.585	.17	.75	.34	.92	.51	.09	.68	.26	5.1	30.1	5.2	60.3	5.4
02	.576	.15	.73	.31	.88	.46	5.03	.61	.19	4.6	29.2	3.8	58.4	2.9
03	.568	.14	.71	.27	.84	.41	4.98	.55	.11	4.1	8.2	2.3	6.4	70.5
04	.560	.12	.68	.24	.80	.36	.92	.48	2.04	3.6	7.3	40.9	4.5	68.1
64 05	13.552	27.10	40.66	54.21	67.76	81.31	94.87	108.42	121.97	813.1	1626.3	2439.4	3252.5	4065.7
06	.544	.09	.63	.18	.72	.26	.81	.35	.90	2.6	5.3	7.9	50.6	3.2
07	.536	.07	.61	.14	.68	.21	.75	.29	.82	2.1	4.3	6.5	48.6	60.8
08	.528	.06	.58	.11	.64	.17	.70	.22	.75	1.7	3.4	5.0	6.7	58.4
09	.520	.04	.56	.08	.60	.12	.64	.16	.68	1.2	2.4	3.6	4.7	5.9
64 10	13.512	27.02	40.54	54.05	67.56	81.07	94.58	108.09	121.60	810.7	1621.4	2432.1	3242.8	4053.5
11	.504	7.01	.51	4.01	.52	1.02	.53	8.03	.54	10.2	20.4	30.6	40.9	51.1
12	.495	6.99	.49	3.98	.48	0.97	.47	7.96	.46	09.7	19.4	29.2	38.9	48.6
13	.487	.97	.46	.95	.44	.92	.41	.90	.39	9.2	8.5	7.7	7.0	6.2
14	.479	.96	.44	.92	.40	.88	.35	.83	.31	8.8	7.5	6.3	5.0	3.8
64 15	13.471	26.94	40.41	53.88	67.35	80.83	94.30	107.77	121.24	808.3	1616.5	2424.8	3233.1	4041.3
16	.463	.93	.39	.85	.31	.78	.24	.70	.17	7.8	5.5	3.3	31.1	38.9
17	.455	.91	.37	.82	.27	.73	.18	.64	.09	7.3	4.6	1.9	29.2	6.5
18	.447	.89	.34	.79	.23	.68	.12	.57	1.02	6.8	3.6	20.4	7.2	4.0
19	.439	.88	.32	.75	.19	.63	.07	.51	0.95	6.3	2.7	19.0	5.3	31.6
64 20	13.431	26.86	40.29	53.72	67.15	80.58	94.01	107.45	120.88	805.8	1611.7	2417.5	3223.3	4029.2
21	.422	.84	.27	.69	.11	.53	3.96	.38	.80	5.3	10.7	6.0	21.4	6.7
22	.414	.83	.24	.66	.07	.49	.90	.31	.73	4.9	09.7	4.6	19.4	4.3
23	.406	.81	.22	.62	7.03	.44	.84	.25	.65	4.4	8.8	3.1	7.5	21.8
24	.398	.80	.19	.59	6.99	.39	.79	.18	.58	3.9	7.8	1.6	5.5	19.4
64 25	13.390	26.78	40.17	53.56	66.95	80.34	93.73	107.12	120.51	803.4	1606.8	2410.2	3213.6	4017.0
26	.382	.76	.15	.53	.91	.29	.67	7.05	.43	2.9	5.8	08.7	11.6	4.5
27	.374	.75	.12	.49	.87	.24	.62	6.99	.36	2.4	4.8	7.3	09.7	12.1
28	.366	.73	.10	.46	.83	.19	.56	.93	.29	1.9	3.9	5.8	7.7	09.7
29	.357	.71	.07	.43	.79	.14	.50	.86	.22	1.4	2.9	4.3	5.8	7.2
64 30	13.349	26.70	40.05	53.40	66.75	80.10	93.45	106.79	120.14	801.0	1601.9	2402.9	3203.8	4004.8
31	.341	.68	.02	.36	.71	.05	.39	.73	20.07	0.5	600.9	401.4	201.9	4002.3
32	.333	.67	40.00	.33	.67	80.00	.33	.66	19.99	800.0	599.9	399.9	199.9	3999.9
33	.325	.65	39.98	.30	.63	79.95	.28	.60	.92	799.5	9.0	8.5	8.0	7.5
34	.317	.63	.95	.27	.58	.90	.21	.53	.85	9.0	8.0	7.0	6.0	5.0
64 35	13.309	26.62	39.93	53.23	66.54	79.85	93.16	106.47	119.78	798.5	1597.0	2395.5	3194.1	3992.6
36	.300	.60	.90	.20	.50	.80	.10	.40	.70	8.0	6.0	4.1	2.1	90.1
37	.292	.58	.88	.17	.46	.75	3.05	.34	.63	7.5	5.1	2.6	90.2	87.7
38	.284	.57	.85	.14	.42	.71	2.99	.27	.56	7.1	4.1	91.2	88.2	5.3
39	.276	.55	.83	.10	.38	.66	.93	.21	.48	6.6	3.1	89.7	6.2	2.8
64 40	13.268	26.54	39.80	53.07	66.34	79.61	92.88	106.14	119.41	796.1	1592.2	2388.2	3184.3	3980.4
41	.260	.52	.78	.04	.30	.56	.82	.08	.34	5.6	1.2	6.8	2.3	77.9
42	.252	.50	.75	3.01	.26	.51	.76	6.01	.26	5.1	90.2	5.3	80.4	5.5
43	.243	.49	.73	2.97	.22	.46	.70	5.95	.19	4.6	89.3	3.8	78.4	3.0
44	.235	.47	.71	.94	.18	.41	.65	.88	.12	4.1	8.3	2.4	6.5	70.6
64 45	13.227	26.45	39.68	52.91	66.14	79.36	92.59	105.82	119.04	793.6	1587.3	2380.9	3174.5	3968.2
46	.219	.44	.66	.88	.09	.31	.53	.75	8.97	3.1	6.3	79.4	2.6	5.7
47	.211	.42	.63	.84	.05	.27	.48	.69	.90	2.7	5.3	8.0	70.6	3.3
48	.203	.41	.61	.81	6.01	.22	.42	.62	.82	2.2	4.4	6.5	68.7	60.8
49	.195	.39	.58	.78	5.97	.17	.36	.56	.75	1.7	3.4	5.0	6.7	58.4
64 50	13.186	26.37	39.56	52.75	65.93	79.12	92.30	105.49	118.68	791.2	1582.4	2373.6	3164.7	3955.9
51	.178	.36	.54	.71	.89	.07	.25	.43	.61	0.7	1.4	2.1	2.8	3.5
52	.170	.34	.51	.68	.85	9.02	.19	.36	.53	90.2	80.4	70.6	60.8	51.0
53	.162	.32	.49	.65	.81	8.97	.13	.30	.46	89.7	79.5	69.2	58.9	48.6
54	.154	.31	.46	.62	.77	.92	.08	.23	.38	9.2	8.5	7.7	6.9	6.1
64 55	13.146	26.29	39.44	52.58	65.73	78.87	92.02	105.17	118.31	788.7	1577.5	2366.2	3155.0	3943.7
56	.137	.27	.41	.55	.69	.82	1.96	.10	.24	8.2	6.5	4.7	3.0	41.2
57	.129	.26	.39	.52	.65	.78	.91	5.03	.16	7.8	5.5	3.3	51.0	38.8
58	.121	.24	.36	.48	.60	.73	.85	4.97	.09	7.3	4.6	1.8	49.1	6.3
59	.113	.23	.34	.45	.56	.68	.79	.90	8.02	6.8	3.6	60.8	7.1	3.9
64 60	13.105	26.21	39.31	52.42	65.52	78.63	91.73	104.84	117.94	786.3	1572.6	2358.9	3145.2	3931.5

Lat.	Latitude 64° to 65°—Meridional arcs.						Latitude 64°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 64° 30'		Value of 1'	Continuous sums of minutes from latitude 64° 00'		Longitude.	X	Y
° '	Meters.	"	Meters.	Meters.	'	Meters.	° '	Meters.	Meters.
64 00	30.967			1858.00			0 1	815.6	0.1
1	7	1	30.97	.01	1	1858.0	0 2	1631.1	0.4
2	7	2	61.94	.01	2	3716.0	3	2446.7	1.0
3	7	3	92.91	.02	3	5574.0	4	3262.2	1.7
4	7	4	123.88	.02	4	7432.1	0 5	4077.8	2.7
64 05	30.967	5	154.84	1858.03	5	9290.1	0 6	4893.4	3.8
6	7	6	185.81	.03	6	11148.1	7	5708.9	5.2
7	7	7	216.78	.04	7	13006.1	8	6524.5	6.8
8	7	8	247.75	.04	8	14864.2	9	7340.1	8.6
9	7	9	278.72	.04	9	16722.2			
64 10	30.967	10	309.69	1858.05	10	18580.3	0 10	8155.6	10.7
11	8	1	340.66	.05	1	20438.3	15	12233.4	24.0
12	8	2	371.63	.06	2	22296.4	20	16311.2	42.6
13	8	3	402.60	.06	3	24154.4	25	20388.9	66.6
14	8	4	433.56	.07	4	26012.5	30	24466.6	95.9
64 15	30.968	15	464.53	1858.07	15	27870.6	0 35	28544.3	130.6
16	8	6	495.50	.07	6	29728.6	40	32621.9	170.6
17	8	7	526.47	.08	7	31586.7	45	36699.5	215.9
18	8	8	557.44	.08	8	33444.8	50	40777.0	266.5
19	8	9	588.41	.09	9	35302.9	55	44854.4	322.5
64 20	30.968	20	619.38	1858.09	20	37161.0	1 00	48931.7	383.8
21	8	1	650.35	.10	1	39019.1	05	53009.0	450.4
22	8	2	681.32	.10	2	40877.2	10	57086.2	522.4
23	8	3	712.28	.10	3	42735.3	15	61163.3	599.7
24	8	4	743.25	.11	4	44593.4	20	65240.2	682.3
64 25	30.969	25	774.22	1858.11	25	46451.5	1 25	69317.1	770.2
26	9	6	805.19	.12	6	48309.6	30	73393.9	863.5
27	9	7	836.16	.12	7	50167.7	35	77470.5	962.1
28	9	8	867.13	.13	8	52025.8	40	81546.9	1066.1
29	9	9	898.10	.13	9	53884.0	45	85623.3	1175.3
64 30	30.969	30	929.07	1858.13	30	55742.1	1 50	89699.5	1289.9
31	9	1	960.04	.14	1	57600.2	55	93775.5	1409.8
32	9	2	991.01	.14	2	59458.4	2 00	97851	1535
33	9	3	1021.97	.15	3	61316.5	3 00	146747	3454
34	9	4	1052.94	.15	4	63174.7	4 00	195607	6139
64 35	30.969	35	1083.91	1858.16	35	65032.8	5 00	244418	9590
36	9	6	1114.88	.16	6	66891.0	6 00	293169	13807
37	9	7	1145.85	.16	7	68749.1	7 00	341848	18788
38	69	8	1176.82	.17	8	70607.3	8 00	390443	24532
39	70	9	1207.79	.17	9	72465.5	9 00	438942	31037
64 40	30.970	40	1238.76	1858.18	40	74323.6	10 00	487333	38302
41	0	1	1269.73	.18	1	76181.8	11 00	535604	46326
42	0	2	1300.69	.19	2	78040.0	12 00	583743	55106
43	0	3	1331.66	.19	3	79898.2	13 00	631739	64639
44	0	4	1362.63	.19	4	81756.4	14 00	679579	74925
64 45	30.970	45	1393.60	1858.20	45	83614.6	15 00	727252	85959
46	0	6	1424.57	.20	6	85472.8	16 00	774745	97741
47	0	7	1455.54	.21	7	87331.0	17 00	822049	110265
48	0	8	1486.51	.21	8	89189.2	18 00	869150	123530
49	0	9	1517.48	.22	9	91047.4	19 00	916037	137533
64 50	30.970	50	1548.45	1858.22	50	92905.6	20 00	962698	152269
51	0	1	1579.41	.22	1	94763.9	21 00	1009123	167735
52	0	2	1610.38	.23	2	96622.1	22 00	1055300	183927
53	1	3	1641.35	.23	3	98480.3	23 00	1101216	200842
54	1	4	1672.32	.24	4	100338.6	24 00	1146862	218475
64 55	30.971	55	1703.29	1858.24	55	102196.8	25 00	1192226	236822
56	1	6	1734.26	.25	6	104055.0	26 00	1237296	255879
57	1	7	1765.23	.25	7	105913.3	27 00	1282062	275639
58	1	8	1796.20	.25	8	107771.5	28 00	1326512	296100
59	1	9	1827.17	.26	9	109629.8	29 00	1370635	317256
64 60	30.971	60	1858.13	1858.26	60	111488.1	30 00	1414422	339100

Latitude 65° to 66°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
65 00	13.105	26.21	39.31	52.42	65.52	78.63	91.73	104.84	117.94	786.3	1572.6	2358.9	3145.2	3931.5
1	.097	.19	.29	.39	.48	.58	.68	.77	.87	5.8	1.6	7.4	3.2	29.0
2	.080	.18	.27	.35	.44	.53	.62	.71	.80	5.3	70.6	5.9	41.2	6.6
3	.080	.16	.24	.32	.40	.48	.56	.64	.72	4.8	69.7	4.5	39.3	4.1
4	.072	.14	.22	.29	.36	.43	.50	.58	.65	4.3	8.7	3.0	7.3	21.6
65 05	13.064	26.13	39.19	52.26	65.32	78.39	91.45	104.51	117.57	783.8	1567.7	2351.5	3135.4	3919.2
5	.056	.11	.17	.22	.28	.33	.39	.45	.50	3.3	6.7	50.0	3.4	6.7
6	.048	.10	.14	.19	.24	.29	.33	.38	.43	2.9	5.7	48.6	31.4	4.3
7	.039	.08	.12	.16	.20	.24	.28	.31	.35	2.4	4.8	7.1	29.5	11.8
8	.031	.06	.09	.13	.16	.19	.22	.25	.28	1.9	3.8	5.6	7.5	09.4
65 10	13.023	26.05	39.07	52.09	65.12	78.14	91.16	104.18	117.21	781.4	1562.8	2344.2	3125.6	3906.9
11	.015	.03	.05	.06	.07	.09	.10	.12	.13	0.9	1.8	2.7	3.6	4.5
12	.007	.01	.02	.03	.03	.04	.05	.05	.06	80.4	60.8	41.2	21.6	902.0
13	2.999	6.00	9.00	1.99	4.99	7.99	0.99	3.99	6.99	79.9	59.9	39.7	19.7	899.6
14	.990	5.98	8.97	.96	.95	.94	.93	.92	.91	9.4	8.9	8.3	7.7	7.1
65 15	12.982	25.96	38.95	51.93	64.91	77.89	90.88	103.86	116.84	778.9	1557.9	2336.8	3115.7	3894.7
15	.974	.95	.92	.90	.87	.84	.82	.79	.77	8.4	6.9	5.3	3.8	92.2
16	.966	.93	.90	.86	.83	.80	.76	.73	.69	8.0	5.9	3.9	11.8	89.8
17	.958	.92	.87	.83	.79	.75	.70	.66	.62	7.5	5.0	2.4	09.8	7.3
18	.950	.90	.85	.80	.75	.70	.65	.60	.55	7.0	4.0	30.9	7.9	4.9
65 20	12.941	25.88	38.82	51.77	64.71	77.65	90.59	103.53	116.47	776.5	1553.0	2329.4	3105.9	3882.4
21	.933	.87	.80	.73	.67	.60	.53	.46	.40	6.0	2.0	8.0	4.0	79.9
22	.925	.85	.77	.70	.63	.55	.48	.40	.32	5.5	1.0	6.5	2.0	7.5
23	.917	.83	.75	.67	.58	.50	.42	.33	.25	5.0	50.0	5.0	100.0	5.0
24	.909	.82	.73	.63	.54	.45	.36	.27	.18	4.5	49.0	3.5	098.1	2.6
65 25	12.900	25.80	38.70	51.60	64.50	77.40	90.30	103.21	116.10	774.0	1548.0	2322.1	3096.1	3870.1
25	.892	.78	.68	.57	.46	.35	.24	.14	6.03	3.5	7.0	20.6	4.1	67.6
26	.884	.77	.65	.54	.42	.30	.19	.07	5.96	3.0	6.0	19.1	2.2	5.2
27	.876	.75	.63	.50	.38	.25	.13	3.01	.88	2.5	5.1	7.6	90.2	2.7
28	.868	.74	.60	.47	.34	.21	.07	2.94	.81	2.1	4.1	6.2	88.2	60.3
65 30	12.859	25.72	38.58	51.44	64.30	77.16	90.02	102.88	115.73	771.6	1543.1	2314.7	3086.3	3857.8
31	.851	.70	.55	.41	.26	.11	.89.96	.81	.66	1.1	2.1	3.2	4.3	5.4
32	.843	.69	.53	.37	.22	.06	.90	.75	.58	0.6	1.1	1.7	2.3	2.9
33	.835	.67	.50	.34	.17	7.01	.84	.68	.51	70.1	40.2	10.3	80.3	50.4
34	.827	.65	.48	.31	.13	6.96	.79	.61	.44	69.6	39.2	08.8	78.4	48.0
65 35	12.818	25.64	38.46	51.27	64.09	76.91	89.73	102.55	115.36	769.1	1538.2	2307.3	3076.4	3845.5
35	.810	.62	.43	.24	.05	.86	.67	.48	.29	8.6	7.2	5.8	4.4	3.1
36	.802	.60	.41	.21	4.01	.81	.61	.42	.22	8.1	6.2	4.4	2.5	40.6
37	.794	.59	.38	.17	3.97	.76	.56	.35	.14	7.6	5.3	2.9	70.5	38.1
38	.786	.57	.36	.14	.93	.71	.50	.29	.07	7.1	4.3	301.4	68.5	5.7
65 40	12.777	25.55	38.33	51.11	63.89	76.66	89.44	102.22	115.00	766.6	1533.3	2299.9	3066.6	3833.2
41	.769	.54	.31	.08	.85	.61	.38	.15	4.92	6.1	2.3	8.4	4.6	30.7
42	.761	.52	.28	.04	.81	.57	.33	.09	.85	5.7	1.3	7.0	2.6	28.3
43	.753	.51	.26	1.01	.76	.52	.27	2.02	.77	5.2	30.4	5.5	60.7	5.8
44	.744	.49	.23	0.98	.72	.47	.21	1.95	.70	4.7	29.4	4.0	58.7	3.3
65 45	12.736	25.47	38.21	50.95	63.68	76.42	89.15	101.89	114.63	764.2	1528.4	2292.5	3056.7	3820.9
45	.728	.46	.18	.91	.64	.37	.10	.82	.55	3.7	7.4	91.0	4.7	18.4
46	.720	.44	.16	.88	.60	.32	9.04	.76	.48	3.2	6.4	89.6	2.8	6.0
47	.712	.42	.14	.85	.56	.27	8.98	.69	.41	2.7	5.4	8.1	50.8	3.5
48	.703	.41	.11	.81	.52	.22	.92	.63	.33	2.2	4.4	6.6	48.8	11.0
65 50	12.695	25.39	38.09	50.78	63.48	76.17	88.87	101.56	114.26	761.7	1523.4	2285.1	3046.9	3808.6
51	.687	.37	.06	.75	.44	.12	.81	.50	.18	1.2	2.4	3.7	4.9	6.1
52	.679	.36	.04	.71	.39	.07	.75	.43	.11	0.7	1.4	2.2	2.9	3.6
53	.671	.34	8.01	.68	.35	6.02	.69	.37	4.04	60.2	20.5	80.7	40.9	801.2
54	.662	.32	7.99	.65	.31	5.97	.64	.30	3.96	59.7	19.5	79.2	39.0	798.7
65 55	12.654	25.31	37.96	50.62	63.27	75.92	88.58	101.23	113.89	759.2	1518.5	2277.7	3037.0	3796.2
55	.646	.29	.94	.58	.23	.88	.52	.17	.81	8.8	7.5	6.3	5.0	3.8
56	.638	.28	.91	.55	.19	.83	.46	.10	.74	8.3	6.5	4.8	3.0	91.3
57	.629	.26	.89	.52	.15	.78	.41	1.03	.66	7.8	5.6	3.3	31.1	88.8
58	.621	.24	.86	.48	.10	.73	.35	0.97	.59	7.3	4.6	1.8	29.1	6.3
65 60	12.613	25.23	37.84	50.45	63.06	75.68	88.29	100.90	113.52	756.8	1513.6	2270.3	3027.1	3783.9

Lat.	Latitude 65° to 66°—Meridional arcs.						Latitude 65°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 65° 30'		Value of 1'	Continuous sums of minutes from latitude 65° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
65 00	30.971			1858.26			0 1	786.3	0.1
1	1	1	30.97	.27	1	1 858.3	0 2	1 572.6	0.4
2	1	2	61.95	.27	2	3 716.5	0 3	2 358.9	0.9
3	1	3	92.92	.27	3	5 574.8	0 4	3 145.2	1.7
4	1	4	123.89	.28	4	7 433.1	0 5	3 931.5	2.6
65 05	30.971	5	154.87	1858.28	5	9 291.4	0 6	4 717.8	3.7
6	1	6	185.84	.29	6	11 149.7	0 7	5 504.0	5.1
7	2	7	216.81	.29	7	13 007.9	0 8	6 290.3	6.6
8	2	8	247.79	.30	8	14 866.2	0 9	7 076.5	8.4
9	2	9	278.76	.30	9	16 724.5	0 10	7 862.9	10.4
65 10	30.972	10	309.73	1858.30	10	18 582.8	0 15	11 794.3	23.3
11	2	1	340.70	.31	1	20 441.1	0 20	15 725.8	41.5
12	2	2	371.68	.31	2	22 299.5	0 25	19 657.1	64.8
13	2	3	402.65	.32	3	24 157.8	0 30	23 588.5	93.3
14	2	4	433.62	.32	4	26 016.1	0 35	27 519.8	127.0
65 15	30.972	15	464.60	1858.33	15	27 874.4	0 40	31 451.1	165.8
16	2	6	495.57	.33	6	29 732.7	0 45	35 382.3	209.9
17	2	7	526.54	.33	7	31 591.1	0 50	39 313.4	259.1
18	2	8	557.52	.34	8	33 449.4	0 55	43 244.5	313.5
19	2	9	588.49	.34	9	35 307.7	1 00	47 175.5	373.1
65 20	30.972	20	619.46	1858.35	20	37 166.1	1 05	51 106.5	437.9
21	2	1	650.44	.35	1	39 024.4	1 10	55 037.3	507.8
22	3	2	681.41	.35	2	40 882.8	1 15	58 968.0	583.0
23	3	3	712.38	.36	3	42 741.2	1 20	62 898.7	663.3
24	3	4	743.36	.36	4	44 599.5	1 25	66 829.2	748.8
65 25	30.973	25	774.33	1858.37	25	46 457.9	1 30	70 759.5	839.5
26	3	6	805.30	.37	6	48 316.2	1 35	74 689.9	935.4
27	3	7	836.27	.38	7	50 174.6	1 40	78 620.1	1 036.4
28	3	8	867.25	.38	8	52 033.0	1 45	82 550.1	1 142.6
29	3	9	898.22	.38	9	53 891.4	1 50	86 479.9	1 254.0
65 30	30.973	30	929.19	1858.39	30	55 749.8	1 55	90 409.7	1 370.6
31	3	1	960.17	.39	1	57 608.2	2 00	94 339	1 492
32	3	2	991.14	.40	2	59 466.5	2 05	98 269.3	1 618
33	3	3	1 022.11	.40	3	61 324.9	2 10	102 199.4	1 749
34	3	4	1 053.09	.40	4	63 183.3	2 15	106 129.5	1 885
65 35	30.973	35	1 084.06	1858.41	35	65 041.8	2 20	110 059.6	2 026
36	4	6	1 115.03	.41	6	66 900.2	2 25	113 989.7	2 172
37	4	7	1 146.01	.42	7	68 758.6	2 30	117 919.8	2 323
38	4	8	1 176.98	.42	8	70 617.0	2 35	121 849.9	2 479
39	4	9	1 207.95	.43	9	72 475.4	2 40	125 779.9	2 635
65 40	30.974	40	1 238.93	1858.43	40	74 333.9	2 45	129 709.9	2 796
41	4	1	1 269.90	.43	1	76 192.3	2 50	133 639.9	2 962
42	4	2	1 300.87	.44	2	78 050.7	2 55	137 569.9	3 133
43	4	3	1 331.84	.44	3	79 909.2	2 60	141 499.9	3 309
44	4	4	1 362.82	.45	4	81 767.6	2 65	145 429.9	3 485
65 45	30.974	45	1 393.79	1858.45	45	83 626.1	2 70	149 359.9	3 661
46	4	6	1 424.76	.45	6	85 484.5	2 75	153 289.9	3 842
47	4	7	1 455.74	.46	7	87 343.0	2 80	157 219.9	4 028
48	4	8	1 486.71	.46	8	89 201.4	2 85	161 149.9	4 219
49	4	9	1 517.68	.47	9	91 059.9	2 90	165 079.9	4 415
65 50	30.975	50	1 548.66	1858.47	50	92 918.4	2 95	169 009.9	4 616
51	5	1	1 579.63	.47	1	94 776.8	3 00	172 939.9	4 822
52	5	2	1 610.60	.48	2	96 635.3	3 05	176 869.9	5 033
53	5	3	1 641.58	.48	3	98 493.8	3 10	180 799.9	5 249
54	5	4	1 672.55	.49	4	100 352.3	3 15	184 729.9	5 470
65 55	30.975	55	1 703.52	1858.49	55	102 210.8	3 20	188 659.9	5 696
56	5	6	1 734.50	.50	6	104 069.3	3 25	192 589.9	5 927
57	5	7	1 765.47	.50	7	105 927.8	3 30	196 519.9	6 163
58	5	8	1 796.44	.50	8	107 786.3	3 35	200 449.9	6 404
59	5	9	1 827.41	.51	9	109 644.8	3 40	204 379.9	6 650
65 60	30.975	60	1 858.39	1858.51	60	111 503.3	3 45	208 309.9	6 901

Latitude 66° to 67°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
66 00	12.613	25.23	37.84	50.45	63.06	75.68	88.29	100.90	113.52	756.8	1513.6	2270.3	3027.1	3783.9
1	.605	.21	.81	.42	3.02	.63	.23	.84	.44	6.3	2.6	68.8	5.1	81.4
2	.596	.19	.79	.39	2.98	.58	.17	.77	.37	5.8	1.6	7.4	3.2	78.9
3	.588	.18	.77	.35	.94	.53	.12	.71	.29	5.3	10.6	5.9	21.2	6.5
4	.580	.16	.74	.32	.90	.48	.06	.64	.22	4.8	09.6	4.4	19.2	4.0
66 05	12.572	25.14	37.72	50.29	62.86	75.43	88.00	100.57	113.15	754.3	1508.6	2262.9	3017.2	3771.5
6	.564	.13	.69	.25	.82	.38	7.95	.51	.07	3.8	7.6	1.4	5.2	69.1
7	.555	.11	.67	.22	.78	.33	.89	.44	3.00	3.3	6.6	60.0	3.3	6.6
8	.547	.09	.64	.19	.73	.28	.83	.38	2.92	2.8	5.7	58.5	11.3	4.1
9	.539	.08	.62	.15	.69	.23	.77	.31	.85	2.3	4.7	7.0	09.3	61.6
66 10	12.531	25.06	37.59	50.12	62.65	75.18	87.71	100.25	112.78	751.8	1503.7	2255.5	3007.3	3759.2
11	.522	.04	.57	.09	.61	.13	.66	.18	.70	1.3	2.7	4.0	5.4	6.7
12	.514	.03	.54	.06	.57	.08	.60	.11	.63	0.8	1.7	2.5	3.4	4.2
13	.506	.01	.52	.02	.53	.04	.54	100.05	.55	50.4	500.7	51.1	3001.4	51.8
14	.498	5.00	.49	49.99	.49	4.99	.48	99.98	.48	49.9	499.7	49.6	2999.4	49.3
66 15	12.480	24.98	37.47	49.96	62.45	74.94	87.43	99.91	112.40	749.4	1498.7	2248.1	2997.4	3746.8
16	.481	.96	.44	.92	.40	.89	.37	.85	.33	8.9	7.7	6.6	5.5	4.3
17	.473	.95	.42	.89	.36	.84	.31	.78	.26	8.4	6.7	5.1	3.5	41.9
18	.465	.93	.39	.86	.32	.79	.25	.72	.18	7.9	5.8	3.6	91.5	39.4
19	.456	.91	.37	.83	.28	.74	.19	.65	.11	7.4	4.8	2.1	89.5	6.9
66 20	12.448	24.90	37.34	49.79	62.24	74.69	87.14	99.58	112.03	746.9	1493.8	2240.7	2987.5	3734.4
21	.440	.88	.32	.76	.20	.64	.08	.52	1.96	6.4	2.8	39.2	5.6	32.0
22	.432	.86	.29	.73	.16	.59	7.02	.45	.59	5.9	1.8	7.7	3.6	29.5
23	.423	.85	.27	.69	.12	.54	6.96	.39	.81	5.4	90.8	6.2	81.6	7.0
24	.415	.83	.24	.66	.08	.49	.91	.32	.73	4.9	89.8	4.7	79.6	4.5
66 25	12.407	24.81	37.22	49.63	62.03	74.44	86.85	99.25	111.66	744.4	1488.8	2233.2	2977.6	3722.0
26	.399	.80	.20	.59	1.99	.39	.79	.18	.59	3.9	87.8	1.7	5.7	19.6
27	.390	.78	.17	.56	.95	.34	.73	.12	.51	3.4	6.8	30.3	3.7	7.1
28	.382	.76	.15	.53	.91	.29	.67	9.05	.44	2.9	5.9	28.8	71.7	4.6
29	.374	.75	.12	.49	.87	.24	.62	8.99	.36	2.4	4.9	7.3	69.7	12.1
66 30	12.366	24.73	37.10	49.46	61.83	74.19	86.56	98.93	111.29	741.9	1483.9	2225.8	2967.7	3709.7
31	.357	.71	.07	.43	.79	.14	.50	.86	.22	1.4	2.9	4.3	5.7	7.2
32	.349	.70	.05	.40	.75	.09	.44	.79	.14	0.9	1.9	2.8	3.8	4.7
33	.341	.68	.02	.36	.70	4.04	.38	.73	1.07	40.4	80.9	21.3	61.8	702.2
34	.332	.66	7.00	.33	.66	3.99	.33	.66	0.99	39.9	79.9	19.8	59.8	699.7
66 35	12.324	24.65	36.97	49.30	61.62	73.95	86.27	98.59	110.91	739.5	1478.9	2218.4	2957.8	3697.3
36	.316	.63	.95	.26	.58	.90	.21	.53	.84	9.0	7.9	6.9	5.8	4.8
37	.308	.62	.92	.23	.54	.85	.15	.46	.77	8.5	6.9	5.4	3.8	92.3
38	.299	.60	.90	.20	.50	.80	.10	.39	.69	8.0	5.9	3.9	51.9	89.8
39	.291	.58	.87	.16	.45	.75	6.04	.33	.62	7.5	4.9	2.4	49.9	7.3
66 40	12.283	24.57	36.85	49.13	61.41	73.70	85.98	98.26	110.55	737.0	1473.9	2210.9	2947.9	3684.9
41	.275	.55	.82	.10	.37	.65	.92	.20	.47	6.5	2.9	09.4	5.9	82.4
42	.266	.53	.80	.07	.33	.60	.86	.13	.40	6.0	1.9	7.9	3.9	79.9
43	.258	.52	.77	.03	.29	.55	.81	.06	.32	5.5	1.0	6.4	41.9	7.4
44	.250	.50	.75	9.00	.25	.50	.75	8.00	.25	5.0	70.0	4.9	39.9	4.9
66 45	12.241	24.48	36.72	48.97	61.21	73.45	85.69	97.93	110.17	734.5	1469.0	2203.5	2937.9	3672.4
46	.233	.47	.70	.93	.17	.40	.63	.87	.10	4.0	8.0	2.0	6.0	70.0
47	.225	.45	.68	.90	.12	.35	.57	.80	10.03	3.5	7.0	200.5	4.0	67.5
48	.217	.44	.65	.87	.09	.30	.52	.74	09.96	3.0	6.0	199.0	2.0	5.0
49	.208	.42	.63	.83	.04	.25	.46	.67	.88	2.5	5.0	7.5	30.0	2.5
66 50	12.200	24.40	36.60	48.80	61.00	73.20	85.40	97.60	109.80	732.0	1464.0	2196.0	2928.0	3660.0
51	.192	.38	.58	.77	0.96	.15	.34	.53	.73	1.5	3.0	4.5	6.0	57.5
52	.183	.37	.55	.73	.92	.10	.28	.47	.65	1.0	2.0	3.0	4.0	5.0
53	.175	.35	.53	.70	.88	.05	.23	.40	.58	0.5	1.0	1.5	2.0	2.6
54	.167	.33	.50	.67	.84	3.00	.17	.34	.50	30.0	60.0	90.0	20.1	50.1
66 55	12.159	24.32	36.48	48.63	60.79	72.95	85.11	97.27	109.44	729.5	1459.0	2188.5	2918.1	3647.6
56	.150	.30	.45	.60	.75	.90	5.05	.20	.35	9.0	8.0	7.1	6.1	5.1
57	.142	.28	.43	.57	.71	.85	4.99	.14	.28	8.5	7.0	5.6	4.1	2.6
58	.134	.27	.40	.53	.67	.80	.94	.07	.20	8.0	6.1	4.1	2.1	40.1
59	.125	.25	.38	.50	.63	.75	.88	7.00	.13	7.5	5.1	2.6	10.1	37.6
66 60	12.117	24.23	36.35	48.47	60.59	72.70	84.82	96.94	109.05	727.0	1454.1	2181.1	2908.1	3635.1

Lat.	Latitude 66° to 67°—Meridional arcs.						Latitude 66°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 66° 30'		Value of 1'	Continuous sums of minutes from latitude 66° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
66 00	30.975			1858.51			0 1		
1	5	1	30.98	.52	1	1 858.5	0 1	756.8	0.1
2	5	2	61.95	.52	2	3 717.0	2	1 513.6	0.4
3	5	3	92.93	.52	3	5 575.6	3	2 270.3	0.9
4	5	4	123.91	.53	4	7 434.1	4	3 027.1	1.6
66 05	30.976	5	154.89	1858.53	5	9 292.6	0 5	3 783.9	2.5
6	6	6	185.86	.54	6	11 151.1	6	4 540.7	3.6
7	6	7	216.84	.54	7	13 009.7	7	5 297.5	4.9
8	6	8	247.82	.54	8	14 868.2	8	6 054.2	6.4
9	6	9	278.80	.55	9	16 726.8	9	6 811.0	8.1
66 10	30.976	10	309.77	1858.55	10	18 585.3	0 10	7 567.8	10.1
11	6	1	340.75	.56	1	20 443.9	15	11 351.7	22.6
12	6	2	371.73	.56	2	22 302.4	20	15 135.5	40.2
13	6	3	402.70	.56	3	24 161.0	25	18 919.3	62.8
14	6	4	433.68	.57	4	26 019.6	30	22 703.1	90.5
66 15	30.976	15	464.66	1858.57	15	27 878.2	0 35	26 486.8	123.2
16	6	6	495.64	.58	6	29 736.7	40	30 270.5	160.9
17	6	7	526.61	.58	7	31 595.3	45	34 054.2	203.6
18	6	8	557.59	.59	8	33 453.9	50	37 837.8	251.4
19	6	9	588.57	.59	9	35 312.5	55	41 621.3	304.2
66 20	30.977	20	619.54	1858.59	20	37 171.1	1 00	45 404.8	362.0
21	7	1	650.52	.60	1	39 029.7	05	49 188.1	424.8
22	7	2	681.50	.60	2	40 888.3	10	52 971.4	492.7
23	7	3	712.48	.61	3	42 746.9	15	56 754.5	565.6
24	7	4	743.45	.61	4	44 605.5	20	60 537.6	643.5
66 25	30.977	25	774.43	1858.61	25	46 464.1	1 25	64 320.6	726.5
26	7	5	805.41	.62	5	48 322.7	30	68 103.5	814.4
27	7	7	836.39	.62	7	50 181.3	35	71 886.2	907.4
28	7	8	867.36	.63	8	52 040.0	40	75 668.8	1 005.4
29	7	9	898.34	.63	9	53 898.6	45	79 451.3	1 108.5
66 30	30.977	30	929.32	1858.63	30	55 757.2	1 50	83 233.7	1 216.6
31	7	1	960.29	.64	1	57 615.8	55	87 015.8	1 329.7
32	7	2	991.27	.64	2	59 474.5	2 00	90 798	1 448
33	7	3	1 022.25	.65	3	61 333.1	3 00	136 168	3 257
34	8	4	1 053.23	.65	4	63 191.8	4 00	181 504	5 790
66 35	30.978	35	1 084.20	1858.65	35	65 050.4	5 00	226 793	9 045
36	8	5	1 115.18	.66	5	66 909.1	6 00	272 024	13 022
37	8	7	1 146.16	.66	7	68 767.7	7 00	317 187	17 719
38	8	8	1 177.13	.67	8	70 626.4	8 00	362 269	23 136
39	8	9	1 208.11	.67	9	72 485.1	9 00	407 259	29 271
66 40	30.978	40	1 239.09	1858.67	40	74 343.8	10 00	452 145	36 122
41	8	1	1 270.07	.68	1	76 202.4	11 00	496 916	43 689
42	8	2	1 301.04	.68	2	78 061.1	12 00	541 561	51 968
43	8	3	1 332.02	.69	3	79 919.8	13 00	586 069	60 958
44	8	4	1 363.00	.69	4	81 778.5	14 00	630 427	70 656
66 45	30.978	45	1 393.98	1858.69	45	83 637.2	15 00	674 625	81 060
46	8	5	1 424.95	.70	5	85 495.9	16 00	718 652	92 168
47	8	7	1 455.93	.70	7	87 354.6	17 00	762 495	103 976
48	8	8	1 486.91	.71	8	89 213.3	18 00	806 145	116 482
49	9	9	1 517.88	.71	9	91 072.0	19 00	849 590	129 682
66 50	30.979	50	1 548.86	1858.71	50	92 930.7	20 00	892 820	143 573
51	9	1	1 579.84	.72	1	94 789.4	21 00	935 822	158 152
52	9	2	1 610.82	.72	2	96 648.1	22 00	978 586	173 414
53	9	3	1 641.79	.73	3	98 506.9	23 00	1 021 101	189 356
54	9	4	1 672.77	.73	4	100 365.6	24 00	1 063 357	205 974
66 55	30.979	55	1 703.75	1858.73	55	102 224.3	25 00	1 105 343	223 264
56	9	5	1 734.73	.74	5	104 083.0	26 00	1 147 048	241 221
57	9	7	1 765.70	.74	7	105 941.8	27 00	1 188 461	259 840
58	9	8	1 796.68	.75	8	107 800.5	28 00	1 229 571	279 118
59	9	9	1 827.66	.75	9	109 659.3	29 00	1 270 370	299 049
66 60	30.979	60	1 858.63	1858.75	60	111 518.0	30 00	1 310 845	319 627

Latitude 67° to 68°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
67 00	12.117	24.23	36.35	48.47	60.59	72.70	84.82	96.94	109.05	727.0	1454.0	2181.1	2908.1	3635.1
1	.109	.22	.33	.44	.55	.65	.76	.87	8.98	6.5	3.1	79.6	6.1	2.7
2	.101	.20	.30	.40	.50	.60	.70	.81	.91	6.0	2.1	8.1	4.1	30.2
3	.092	.18	.28	.37	.46	.55	.65	.74	.83	5.5	1.1	6.6	2.1	27.7
4	.084	.17	.25	.34	.42	.50	.59	.67	.76	5.0	50.1	5.1	900.1	5.2
67 05	12.076	24.15	36.23	48.30	60.38	72.45	84.53	96.61	108.68	724.5	1449.1	2173.6	2898.2	3622.7
6	.067	.13	.20	.27	.34	.40	.47	.54	.61	4.0	8.1	2.1	6.2	20.2
7	.059	.12	.18	.24	.30	.35	.41	.47	.53	3.5	7.1	70.6	4.2	17.7
8	.051	.10	.15	.20	.25	.30	.35	.41	.46	3.0	6.1	69.1	2.2	5.2
9	.042	.08	.13	.17	.21	.25	.30	.34	.38	2.5	5.1	7.6	90.2	2.7
67 10	12.034	24.07	36.10	48.14	60.17	72.20	84.24	96.27	108.31	722.0	1444.1	2166.1	2888.2	3610.2
11	.026	.05	.08	.10	.13	.15	.18	.21	.23	1.5	3.1	4.6	6.2	07.7
12	.018	.04	.05	.07	.09	.11	.12	.14	.16	1.1	2.1	3.2	4.2	5.3
13	.009	.02	.03	.04	.05	.06	.07	.07	.08	0.6	1.1	1.7	2.2	2.8
14	2.001	4.00	6.00	8.00	60.01	2.01	4.01	6.01	8.01	20.1	40.1	60.2	80.2	3600.3
67 15	11.993	23.99	35.98	47.97	59.96	71.96	83.95	95.94	107.93	719.6	1439.1	2158.7	2878.2	3597.8
16	.984	.97	.95	.94	.92	.91	.89	.87	.86	9.1	8.1	7.2	6.2	5.3
17	.976	.95	.93	.90	.88	.86	.83	.81	.78	8.6	7.1	5.7	4.2	2.8
18	.968	.94	.90	.87	.84	.81	.77	.74	.71	8.1	6.1	4.2	2.2	90.3
19	.959	.92	.88	.84	.80	.76	.72	.68	.64	7.6	5.1	2.7	70.2	87.8
67 20	11.951	23.90	35.85	47.80	59.76	71.71	83.66	95.61	107.56	717.1	1434.1	2151.2	2868.3	3585.3
21	.943	.89	.83	.77	.72	.66	.60	.54	.48	6.6	3.1	49.7	6.3	2.8
22	.934	.87	.80	.74	.67	.61	.54	.48	.41	6.1	2.1	8.2	4.3	80.3
23	.926	.85	.78	.70	.63	.56	.49	.41	.33	5.6	1.1	6.7	2.3	77.8
24	.918	.84	.75	.67	.59	.51	.42	.34	.26	5.1	30.1	5.2	60.3	5.3
67 25	11.909	23.82	35.73	47.64	59.55	71.46	83.37	95.28	107.18	714.6	1429.1	2143.7	2858.3	3572.8
26	.901	.80	.70	.60	.51	.41	.31	.21	.11	4.1	8.1	2.2	6.3	70.3
27	.893	.79	.68	.57	.46	.36	.25	.14	7.03	3.6	7.1	40.7	4.3	67.8
28	.884	.77	.65	.54	.42	.31	.19	.07	6.96	3.1	6.1	39.2	2.3	5.3
29	.876	.75	.63	.50	.38	.26	.13	5.01	.88	2.6	5.1	7.7	50.3	2.8
67 30	11.868	23.74	35.60	47.47	59.34	71.21	83.07	94.94	106.81	712.1	1424.1	2136.2	2848.3	3560.3
31	.859	.72	.58	.44	.30	.16	3.02	.88	.73	1.6	3.1	4.7	6.3	57.8
32	.851	.70	.55	.40	.26	.11	2.96	.81	.66	1.1	2.1	3.2	4.3	5.3
33	.843	.69	.53	.37	.21	.06	.90	.74	.58	0.6	1.1	1.7	2.3	2.8
34	.834	.67	.50	.34	.17	1.01	.84	.68	.51	10.1	20.1	30.2	40.3	50.3
67 35	11.826	23.65	35.48	47.30	59.13	70.96	82.78	94.61	106.43	709.6	1419.1	2128.7	2838.3	3547.8
36	.818	.64	.45	.27	.09	.91	.72	.54	.36	9.1	8.1	7.2	6.3	5.3
37	.809	.62	.43	.24	.05	.86	.66	.48	.28	8.6	7.1	5.7	4.3	2.8
38	.801	.60	.40	.20	9.00	.81	.61	.41	.21	8.1	6.1	4.2	2.3	40.3
39	.793	.59	.38	.17	8.96	.76	.55	.34	.13	7.6	5.1	2.7	30.3	37.8
67 40	11.784	23.57	35.35	47.14	58.92	70.71	82.49	94.28	106.06	707.1	1414.1	2121.2	2828.3	3535.3
41	.776	.55	.33	.10	.88	.66	.43	.21	5.98	6.6	3.1	19.7	6.3	2.8
42	.768	.54	.30	.07	.84	.61	.37	.14	.91	6.1	2.1	8.2	4.3	30.3
43	.759	.52	.28	.04	.80	.56	.32	.08	.83	5.6	1.1	6.7	2.3	27.8
44	.751	.50	.25	47.00	.76	.51	.26	4.01	.76	5.1	10.1	5.2	20.3	5.3
67 45	11.743	23.49	35.23	46.97	58.71	70.46	82.20	93.94	105.68	704.6	1409.1	2113.7	2818.3	3522.8
46	.734	.47	.20	.94	.67	.41	.14	.88	.61	4.1	8.1	2.2	6.3	20.3
47	.726	.45	.18	.90	.63	.36	.08	.81	.53	3.6	7.1	10.7	4.3	17.8
48	.718	.44	.15	.87	.59	.31	2.02	.74	.46	3.1	6.1	09.2	2.3	5.3
49	.709	.42	.13	.84	.55	.26	1.97	.68	.38	2.6	5.1	7.7	10.3	2.8
67 50	11.701	23.40	35.10	46.80	58.51	70.21	81.91	93.61	105.31	702.1	1404.1	2106.2	2808.3	3510.3
51	.693	.39	.08	.77	.46	.16	.85	.54	.23	1.6	3.1	4.7	6.3	07.8
52	.684	.37	.05	.74	.42	.11	.79	.47	.16	1.1	2.1	3.2	4.3	5.3
53	.676	.35	.03	.70	.38	.06	.73	.41	.08	0.6	1.1	1.7	2.2	2.8
54	.668	.34	5.00	.67	.34	70.01	.67	.34	5.01	700.1	400.1	100.2	800.2	500.3
67 55	11.659	23.32	34.98	46.64	58.30	69.96	81.62	93.28	104.93	699.6	1399.1	2098.7	2798.2	3497.8
56	.651	.30	.95	.60	.26	.91	.56	.21	.86	9.1	8.1	7.2	6.2	5.3
57	.643	.29	.93	.57	.21	.86	.50	.14	.78	8.6	7.1	5.7	4.2	2.8
58	.634	.27	.90	.54	.17	.81	.44	.07	.71	8.1	6.1	4.2	2.2	90.3
59	.626	.26	.88	.50	.13	.76	.38	3.01	.64	7.6	5.1	2.7	90.2	87.8
67 60	11.618	23.24	34.85	46.47	58.09	69.71	81.32	92.94	104.56	697.1	1394.1	2091.2	2788.2	3485.3

Lat.	Latitude 67° to 68°—Meridional arcs.						Latitude 67°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 67° 30'		Value of 1'	Continuous sums of minutes from latitude 67° 00'		Longitude.	X	Y
° ' "	Meters.	''	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
67 00	30.979			1858.75			0 1		
1	9	1	30.98	.76	1	1 858.8	0 1	727.1	0.1
2	9	2	61.96	.76	2	3 717.5	2	1 454.1	0.4
3	79	3	92.94	.77	3	5 576.3	3	2 181.1	0.9
4	80	4	123.92	.77	4	7 435.0	4	2 908.1	1.6
67 05	30.980	5	154.91	1858.77	5	9 293.8	0 5	3 635.1	2.4
6	0	6	185.89	.78	6	11 152.6	6	4 362.2	3.5
7	0	7	216.87	.78	7	13 011.4	7	5 089.2	4.8
8	0	8	247.85	.79	8	14 870.2	8	5 816.2	6.2
9	0	9	278.83	.79	9	16 728.9	9	6 543.3	7.9
67 10	30.980	10	309.81	1858.79	10	18 587.7	0 10	7 270.3	9.7
11	0	1	340.79	.80	1	20 446.5	15	10 905.4	21.9
12	0	2	371.77	.80	2	22 305.3	20	14 540.5	38.9
13	0	3	402.76	.81	3	24 164.1	25	18 175.6	60.8
14	0	4	433.74	.81	4	26 022.9	30	21 810.6	87.6
67 15	30.980	15	464.72	1858.81	15	27 881.8	0 35	25 445.6	119.2
16	0	6	495.70	.82	6	29 740.6	40	29 080.6	155.7
17	0	7	526.68	.82	7	31 599.4	45	32 715.5	197.1
18	0	8	557.66	.83	8	33 458.2	50	36 350.4	243.3
19	0	9	588.64	.83	9	35 317.0	55	39 985.2	294.4
67 20	30.981	20	619.62	1858.83	20	37 175.9	1 00	43 619.9	350.4
21	1	1	650.61	.84	1	39 034.7	05	47 254.5	411.2
22	1	2	681.59	.84	2	40 893.6	10	50 889.1	476.9
23	1	3	712.57	.84	3	42 752.4	15	54 523.5	547.5
24	1	4	743.55	.85	4	44 611.2	20	58 157.9	622.9
67 25	30.981	25	774.53	1858.85	25	46 470.1	1 25	61 792.1	703.2
26	1	6	805.51	.86	6	48 329.0	30	65 426.3	788.4
27	1	7	836.49	.86	7	50 187.8	35	69 060.3	878.4
28	1	8	867.47	.86	8	52 046.7	40	72 694.2	973.3
29	1	9	898.46	.87	9	53 905.5	45	76 328.0	1 073.0
67 30	30.981	30	929.44	1858.87	30	55 764.4	1 50	79 961.6	1 177.4
31	1	1	960.42	.88	1	57 623.3	55	83 595.1	1 287.1
32	1	2	991.40	.88	2	59 482.2	2 00	87 228	1 401
33	1	3	1 022.38	.88	3	61 341.0	3 00	130 815	3 153
34	1	4	1 053.36	.89	4	63 199.9	4 00	174 367	5 605
67 35	30.982	35	1 084.34	1858.89	35	65 058.8	5 00	217 874	8 756
36	2	6	1 115.32	.90	6	66 917.7	6 00	261 325	12 605
37	2	7	1 146.30	.90	7	68 776.6	7 00	304 709	17 152
38	2	8	1 177.29	.90	8	70 635.5	8 00	348 014	22 395
39	2	9	1 208.27	.91	9	72 494.4	9 00	391 229	28 334
67 40	30.982	40	1 239.25	1858.91	40	74 353.3	10 00	434 343	34 966
41	2	1	1 270.23	.92	1	76 212.2	11 00	477 345	42 289
42	2	2	1 301.21	.92	2	78 071.2	12 00	520 224	50 303
43	2	3	1 332.19	.92	3	79 930.1	13 00	562 969	59 004
44	2	4	1 363.17	.93	4	81 789.0	14 00	605 568	68 391
67 45	30.982	45	1 394.15	1858.93	45	83 647.9	15 00	648 011	78 461
46	2	6	1 425.14	.93	6	85 506.9	16 00	690 287	89 212
47	2	7	1 456.12	.94	7	87 365.8	17 00	732 384	100 640
48	2	8	1 487.10	.94	8	89 224.7	18 00	774 293	112 744
49	2	9	1 518.08	.95	9	91 083.7	19 00	816 002	125 519
67 50	30.982	50	1 549.06	1858.95	50	92 942.6	20 00	857 500	138 962
51	3	1	1 580.04	.95	1	94 801.6	21 00	898 776	153 070
52	3	2	1 611.02	.96	2	96 660.5	22 00	939 821	167 840
53	3	3	1 642.00	.96	3	98 519.5	23 00	980 623	183 267
54	3	4	1 672.99	.97	4	100 378.4	24 00	1 021 173	199 348
67 55	30.983	55	1 703.97	1858.97	55	102 237.4	25 00	1 061 458	216 078
56	3	6	1 734.95	.97	6	104 096.4	26 00	1 101 470	233 453
57	3	7	1 765.93	.98	7	105 955.4	27 00	1 141 197	251 468
58	3	8	1 796.91	.98	8	107 814.3	28 00	1 180 629	270 120
59	3	9	1 827.89	.98	9	109 673.3	29 00	1 219 757	289 402
67 60	30.983	60	1 858.87	1858.99	60	111 532.3	30 00	1 258 571	309 311

Latitude 68° to 69°—arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
• /														
68 00	II. 618	23.24	34.85	46.47	58.09	69.71	81.32	92.94	104.56	697.1	1394.1	2091.2	2788.2	3485.3
1	.609	.22	.83	.44	.05	.66	.26	.87	.48	6.6	3.1	89.7	6.2	2.8
2	.601	.20	.80	.40	8.01	.61	.21	.81	.41	6.1	2.1	8.2	4.2	80.3
3	.592	.18	.78	.37	7.96	.55	.15	.74	.33	5.5	1.1	6.6	2.2	77.7
4	.584	.17	.75	.34	.92	.50	.09	.67	.26	5.0	90.1	5.1	80.2	5.2
68 05	II. 576	23.15	34.73	46.30	57.88	69.45	81.03	92.61	104.18	694.5	1389.1	2083.6	2778.2	3472.7
6	.567	.13	.70	.27	.84	.40	0.97	.54	.11	4.0	8.1	2.1	6.2	70.2
7	.559	.12	.68	.24	.80	.35	.91	.47	4.03	3.5	7.1	80.6	4.2	67.7
8	.551	.10	.65	.20	.75	.30	.85	.41	3.96	3.0	6.1	79.1	2.2	5.2
9	.542	.08	.63	.17	.71	.25	.80	.34	.88	2.5	5.1	7.6	70.2	2.7
68 10	II. 534	23.07	34.60	46.14	57.67	69.20	80.74	92.27	103.81	692.0	1384.1	2076.1	2768.2	3460.2
11	.526	.05	.58	.10	.63	.15	.68	.21	.73	1.5	3.1	4.6	6.1	57.7
12	.517	.03	.55	.07	.59	.10	.62	.14	.66	1.0	2.1	3.1	4.1	5.2
13	.509	.02	.53	.04	.54	.05	.56	.07	.58	0.5	1.1	1.6	2.1	2.7
14	.500	3.00	.50	6.00	.50	9.00	.50	2.00	.50	90.0	80.1	70.1	60.1	50.1
68 15	II. 492	22.98	34.48	45.97	57.46	68.95	80.44	91.94	103.43	689.5	1379.1	2068.6	2758.1	3447.6
16	.484	.97	.45	.93	.42	.90	.39	.87	.35	9.0	8.1	7.1	6.1	5.1
17	.475	.95	.43	.90	.38	.85	.33	.80	.28	8.5	7.1	5.6	4.1	2.6
18	.467	.93	.40	.87	.33	.80	.27	.74	.20	8.0	6.0	4.1	2.1	40.1
19	.459	.92	.38	.83	.29	.75	.21	.67	.13	7.5	5.0	2.6	50.1	37.6
68 20	II. 450	22.90	34.35	45.80	57.25	68.70	80.15	91.60	103.05	687.0	1374.0	2061.0	2748.1	3435.1
21	.442	.88	.33	.77	.21	.65	.09	.54	2.98	6.5	3.0	59.5	6.0	2.6
22	.433	.87	.30	.73	.17	.60	80.03	.47	.90	6.0	2.0	5.0	4.0	30.0
23	.425	.85	.28	.70	.12	.55	79.97	.40	.83	5.5	1.0	6.5	2.0	27.5
24	.417	.83	.25	.67	.08	.50	.92	.33	.75	5.0	70.0	5.0	40.0	5.0
68 25	II. 408	22.82	34.23	45.63	57.04	68.45	79.86	91.27	102.68	684.5	1369.0	2053.5	2738.0	3422.5
26	.400	.80	.20	.60	7.00	.40	.80	.20	.60	4.0	8.0	2.0	6.0	20.0
27	.392	.78	.18	.57	6.96	.35	.74	.13	.53	3.5	7.0	50.5	4.0	17.5
28	.383	.77	.15	.53	.92	.30	.69	.07	.45	3.0	6.0	49.0	2.0	5.0
29	.375	.75	.12	.50	.87	.25	.62	1.00	.37	2.5	5.0	7.5	30.0	12.4
68 30	II. 366	22.73	34.10	45.47	56.83	68.20	79.56	90.93	102.30	682.0	1364.0	2046.0	2727.9	3409.9
31	.358	.72	.07	.44	.79	.15	.51	.86	.22	1.5	3.0	4.4	5.9	7.4
32	.350	.70	.05	.40	.75	.10	.45	.80	.15	1.0	2.0	2.9	3.9	4.9
33	.341	.68	.02	.37	.71	.05	.39	.73	.07	0.5	60.9	41.4	21.9	402.4
34	.333	.67	4.00	.33	.66	8.00	.33	.66	2.00	80.0	59.9	39.9	19.9	399.9
68 35	II. 324	22.65	33.97	45.30	56.62	67.95	79.27	90.59	101.92	679.5	1358.9	2038.4	2717.9	3397.3
36	.316	.63	.95	.26	.58	.90	.21	.53	.84	9.0	7.9	6.9	5.9	4.8
37	.308	.62	.92	.23	.54	.85	.15	.46	.77	8.5	6.9	5.4	3.8	92.3
38	.299	.60	.90	.20	.50	.80	.10	.39	.69	8.0	5.9	3.9	11.8	89.8
39	.291	.58	.87	.16	.45	.75	9.04	.33	.62	7.5	4.9	2.4	09.8	7.3
68 40	II. 283	22.57	33.85	45.13	56.41	67.70	78.98	90.26	101.54	677.0	1353.9	2030.9	2707.8	3384.8
41	.274	.55	.82	.10	.37	.64	.92	.19	.47	6.4	2.9	29.3	5.8	82.2
42	.266	.53	.80	.06	.33	.59	.86	.13	.39	5.9	1.9	7.8	3.8	79.7
43	.257	.51	.77	.03	.29	.54	.80	90.06	.32	5.4	50.9	6.3	01.8	7.2
44	.249	.50	.75	5.00	.24	.49	.74	89.99	.24	4.9	49.9	4.8	699.7	4.7
68 45	II. 241	22.48	33.72	44.96	56.20	67.44	78.68	89.93	101.17	674.4	1348.9	2023.3	2697.7	3372.2
46	.232	.46	.70	.93	.16	.39	.62	.86	.09	3.9	7.9	1.8	5.7	69.6
47	.224	.45	.67	.89	.12	.34	.57	.79	1.02	3.4	6.9	20.3	3.7	7.1
48	.215	.43	.65	.86	.07	.29	.51	.72	0.94	2.9	5.8	18.8	91.7	4.6
49	.207	.42	.62	.82	6.03	.24	.45	.66	.87	2.4	4.8	7.2	89.7	62.1
68 50	II. 199	22.40	33.60	44.79	55.99	67.19	78.39	89.59	100.79	671.9	1343.8	2015.7	2687.6	3359.6
51	.190	.38	.57	.76	.95	.14	.33	.52	.71	1.4	2.8	4.2	5.6	7.0
52	.182	.36	.55	.73	.91	.09	.27	.45	.64	0.9	1.8	2.7	3.6	4.5
53	.173	.35	.52	.69	.87	7.04	.21	.39	.56	70.4	40.8	11.2	81.6	52.0
54	.165	.33	.50	.66	.82	6.99	.15	.32	.49	69.9	39.8	09.7	79.6	49.5
68 55	II. 156	22.31	33.47	44.63	55.78	66.94	78.09	89.25	100.41	669.4	1338.8	2008.2	2677.6	3346.9
56	.148	.30	.44	.59	.74	.89	8.04	.18	.33	8.9	7.8	6.7	5.5	4.4
57	.140	.28	.42	.56	.70	.84	7.98	.12	.26	8.4	6.8	5.1	3.5	41.9
58	.131	.26	.39	.53	.66	.79	.92	9.05	.18	7.9	5.7	3.6	71.5	39.4
59	.123	.25	.37	.49	.61	.74	.86	8.98	.11	7.4	4.7	2.1	69.5	6.9
68 60	II. 114	22.23	33.34	44.46	55.57	66.69	77.80	88.92	100.03	666.9	1333.7	2000.6	2667.5	3334.3

Lat.	Latitude 68° to 69°—Meridional arcs.						Latitude 68°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 68° 30'		Value of 1'	Continuous sums of minutes from latitude 68° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
68 00	30.983			1858.99			0 1	697.1	0.1
1	3	1	30.99	.99	1	1 859.0	2	1 394.1	0.4
2	3	2	61.97	9.00	2	3 718.0	3	2 091.1	0.8
3	3	3	92.96	.00	3	5 577.0	4	2 788.2	1.5
4	3	4	123.94	.00	4	7 436.0	5	3 485.2	2.3
68 05	30.983	5	154.93	1859.01	5	9 295.0	6	4 182.3	3.4
6	4	6	185.91	.01	6	11 154.0	7	4 879.4	4.6
7	4	7	216.90	.02	7	13 013.0	8	5 576.4	6.0
8	4	8	247.88	.02	8	14 872.0	9	6 273.5	7.6
9	4	9	278.87	.02	9	16 731.1	10	6 970.5	9.4
68 10	30.984	10	309.85	1859.03	10	18 590.1	15	10 455.8	21.1
11	4	1	340.84	.03	1	20 449.1	20	13 941.0	37.6
12	4	2	371.82	.03	2	22 308.1	25	17 426.3	58.7
13	4	3	402.81	.04	3	24 167.2	30	20 911.4	84.6
14	4	4	433.79	.04	4	26 026.2	35	24 396.6	115.1
68 15	30.984	15	464.78	1859.05	15	27 885.3	40	27 881.7	150.4
16	4	6	495.76	.05	6	29 744.3	45	31 366.7	190.3
17	4	7	526.75	.05	7	31 603.4	50	34 851.7	235.0
18	4	8	557.73	.06	8	33 462.4	55	38 336.6	284.3
19	4	9	588.72	.06	9	35 321.5	1 00	41 821.5	338.4
68 20	30.984	20	619.70	1859.06	20	37 180.5	05	45 306.3	397.1
21	4	1	650.69	.07	1	39 039.6	10	48 791.0	460.6
22	5	2	681.67	.07	2	40 898.7	15	52 275.6	528.7
23	5	3	712.66	.08	3	42 757.8	20	55 760.1	601.6
24	5	4	743.64	.08	4	44 616.8	25	59 244.5	679.1
68 25	30.985	25	774.63	1859.08	25	46 475.9	30	62 728.8	761.4
26	5	6	805.61	.09	6	48 335.0	35	66 213.0	848.3
27	5	7	836.60	.09	7	50 194.1	40	69 697.1	940.0
28	5	8	867.58	.10	8	52 053.2	45	73 181.0	1 036.3
29	5	9	898.57	.10	9	53 912.3	1 50	76 664.9	1 137.3
68 30	30.985	30	929.55	1859.10	30	55 771.4	55	80 148.5	1 243.1
31	5	1	960.54	.11	1	57 630.5	2 00	83 632	1 353
32	5	2	991.52	.11	2	59 489.6	3 00	125 421	3 045
33	5	3	1 022.51	.11	3	61 348.7	4 00	167 177	5 413
34	5	4	1 053.49	.12	4	63 207.8	5 00	208 889	8 455
68 35	30.985	35	1 084.48	1859.12	35	65 066.9	6 00	250 546	12 173
36	5	6	1 115.46	.13	6	66 926.0	7 00	292 138	16 563
37	5	7	1 146.45	.13	7	68 785.2	8 00	333 653	21 627
38	6	8	1 177.43	.13	8	70 644.3	9 00	375 081	27 362
39	6	9	1 208.42	.14	9	72 503.5	10 00	416 410	33 766
68 40	30.986	40	1 239.40	1859.14	40	74 362.6	11 00	457 631	40 838
41	6	1	1 270.39	.14	1	76 221.7	12 00	498 732	48 577
42	6	2	1 301.37	.15	2	78 080.9	13 00	539 702	56 979
43	6	3	1 332.36	.15	3	79 940.0	14 00	580 531	66 043
44	6	4	1 363.34	.16	4	81 799.2	15 00	621 207	75 767
68 45	30.986	45	1 394.33	1859.16	45	83 658.3	16 00	661 722	86 148
46	6	6	1 425.31	.16	6	85 517.5	17 00	702 062	97 183
47	6	7	1 456.30	.17	7	87 376.7	18 00	742 219	108 869
48	6	8	1 487.28	.17	8	89 235.8	19 00	782 182	121 204
49	6	9	1 518.27	.17	9	91 095.0	20 00	821 940	134 183
68 50	30.986	50	1 549.25	1859.18	50	92 954.2	21 00	861 482	147 804
51	6	1	1 580.24	.18	1	94 813.4	22 00	900 799	162 064
52	6	2	1 611.22	.18	2	96 672.6	23 00	939 880	176 957
53	6	3	1 642.21	.19	3	98 531.7	24 00	978 715	192 481
54	7	4	1 673.19	.19	4	100 390.9	25 00	1 017 294	208 632
68 55	30.987	55	1 704.18	1859.20	55	102 250.1	26 00	1 055 606	225 404
56	7	6	1 735.16	.20	6	104 109.3	27 00	1 093 642	242 795
57	7	7	1 766.15	.20	7	105 968.5	28 00	1 131 392	260 798
58	7	8	1 797.13	.21	8	107 827.7	29 00	1 168 845	279 411
59	7	9	1 828.12	.21	9	109 686.9	30 00	1 205 992	298 626
68 60	30.987	60	1 859.10	1859.21	60	111 546.2			

Latitude 69° to 70°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
69 00	11.114	22.23	33.34	44.46	55.57	66.69	77.80	88.92	100.03	666.9	1333.7	2000.6	2667.5	3334.3
1	.106	.21	.32	.42	.53	.64	.74	.85	.95	6.4	2.7	1999.1	5.4	31.8
2	.098	.20	.29	.39	.49	.59	.68	.78	.88	5.9	1.7	7.6	3.4	29.3
3	.089	.18	.27	.36	.45	.54	.63	.72	.80	5.4	30.7	6.1	1.4	6.8
4	.081	.16	.24	.32	.40	.48	.56	.65	.73	4.8	29.7	4.5	59.4	4.2
69 05	11.072	22.14	33.22	44.29	55.36	66.43	77.51	88.58	99.65	664.3	1328.7	1993.0	2657.4	3321.7
6	.064	.13	.19	.26	.32	.38	.45	.51	.58	3.8	7.7	1.5	5.3	19.2
7	.055	.11	.17	.22	.28	.33	.39	.44	.50	3.3	6.7	90.0	3.3	6.6
8	.047	.09	.14	.19	.23	.28	.33	.38	.42	2.8	5.6	88.5	1.3	4.1
9	.039	.08	.12	.15	.19	.23	.27	.31	.35	2.3	4.6	7.0	49.3	11.6
69 10	11.030	22.06	33.09	44.12	55.15	66.18	77.21	88.24	99.27	661.8	1323.6	1985.4	2647.3	3309.1
11	.022	.04	.07	.09	.11	.13	.15	.17	.20	1.3	2.6	3.9	5.2	6.5
12	.013	.03	.04	.05	.07	.08	.09	.11	.12	0.8	1.6	2.4	3.2	4.0
13	.005	2.01	3.02	4.02	5.02	6.03	7.03	8.04	9.04	60.3	20.6	80.9	41.2	301.5
14	.007	1.99	2.99	3.99	4.98	5.98	6.98	7.97	8.97	59.8	19.6	79.4	39.2	299.0
69 15	10.988	21.98	32.97	43.95	54.94	65.93	76.92	87.90	98.89	659.3	1318.6	1977.9	2637.1	3296.4
16	.980	.96	.94	.92	.90	.88	.86	.84	.82	8.8	7.6	6.3	5.1	3.9
17	.971	.94	.91	.89	.86	.83	.80	.77	.74	8.3	6.6	4.8	3.1	91.4
18	.963	.93	.89	.85	.81	.78	.74	.70	.66	7.8	5.5	3.3	31.1	88.8
19	.954	.91	.86	.82	.77	.73	.68	.63	.59	7.3	4.5	1.8	29.0	6.3
69 20	10.946	21.89	32.84	43.78	54.73	65.68	76.62	87.57	98.51	656.8	1313.5	1970.3	2627.0	3283.8
21	.938	.88	.81	.75	.69	.63	.56	.50	.44	6.3	2.5	68.8	5.0	81.3
22	.929	.86	.79	.72	.65	.57	.50	.43	.36	5.7	1.5	7.2	3.0	78.7
23	.921	.84	.76	.68	.60	.53	.44	.37	.29	5.2	10.4	5.7	20.9	6.2
24	.912	.82	.74	.65	.56	.47	.39	.30	.21	4.7	09.4	4.2	18.9	3.7
69 25	10.904	21.81	32.71	43.61	54.52	65.42	76.33	87.23	98.13	654.2	1308.4	1962.7	2616.9	3271.1
26	.895	.79	.69	.58	.48	.37	.27	.16	8.06	3.7	7.4	61.2	4.9	68.6
27	.887	.77	.66	.55	.44	.32	.21	.10	7.98	3.2	6.4	59.6	2.8	6.1
28	.878	.75	.63	.51	.39	.27	.15	7.03	.90	2.7	5.4	8.1	10.8	3.5
29	.870	.74	.61	.48	.35	.22	.09	6.96	.83	2.2	4.4	6.6	08.8	61.0
69 30	10.862	21.72	32.58	43.45	54.31	65.17	76.03	86.89	97.75	651.7	1303.4	1955.1	2606.8	3258.5
31	.853	.71	.56	.41	.27	.12	5.97	.82	.68	1.2	2.4	3.6	4.7	5.9
32	.845	.69	.53	.38	.22	.07	.91	.76	.60	0.7	1.4	2.0	2.7	3.4
33	.836	.67	.51	.35	.18	5.02	.85	.69	.53	50.2	300.3	50.5	600.7	50.9
34	.828	.66	.48	.31	.14	4.97	.79	.62	.45	49.7	299.3	49.0	598.7	48.3
69 35	10.819	21.64	32.46	43.28	54.10	64.92	75.74	86.55	97.37	649.2	1298.3	1947.5	2596.6	3245.8
36	.811	.62	.43	.24	.06	.87	.68	.49	.30	8.7	7.3	6.0	4.6	3.3
37	.802	.60	.41	.21	4.01	.81	.62	.42	.22	8.1	6.3	4.4	2.6	40.7
38	.794	.59	.38	.18	3.97	.76	.56	.35	.15	7.6	5.3	2.9	90.6	38.2
39	.786	.57	.36	.14	.93	.71	.50	.29	7.07	7.1	4.2	41.4	88.5	5.7
69 40	10.777	21.55	32.33	43.11	53.89	64.66	75.44	86.22	96.99	646.6	1293.2	1939.9	2586.5	3233.1
41	.769	.54	.31	.07	.84	.61	.38	.15	.92	6.1	2.2	8.4	4.5	30.6
42	.760	.52	.28	.04	.80	.56	.32	.08	.84	5.6	1.2	6.8	2.4	28.0
43	.752	.50	.26	3.01	.76	.51	.26	6.01	.77	5.1	90.2	5.3	80.4	5.5
44	.743	.49	.23	2.97	.72	.46	.20	5.95	.69	4.6	89.2	3.8	78.4	3.0
69 45	10.735	21.47	32.20	42.94	53.67	64.41	75.15	85.88	96.61	644.1	1288.2	1932.3	2576.3	3220.4
46	.726	.45	.18	.91	.63	.36	.08	.81	.54	3.6	7.2	30.7	4.3	17.9
47	.718	.44	.15	.87	.59	.31	5.03	.74	.46	3.1	6.2	29.2	2.3	5.4
48	.709	.42	.13	.84	.55	.26	4.97	.67	.38	2.6	5.1	7.7	70.3	2.8
49	.701	.40	.10	.80	.50	.21	.91	.61	.31	2.1	4.1	6.2	68.2	10.3
69 50	10.693	21.39	32.08	42.77	53.46	64.16	74.85	85.54	96.23	641.6	1283.1	1924.7	2566.2	3207.8
51	.684	.37	.05	.74	.42	.11	.79	.47	.16	1.0	2.1	3.1	4.2	5.2
52	.676	.35	.03	.70	.38	.05	.73	.41	.08	0.5	1.1	1.6	2.1	2.7
53	.667	.33	2.00	.67	.33	4.00	.67	.34	6.00	40.0	80.0	20.1	60.1	200.1
54	.659	.32	1.98	.63	.29	3.95	.61	.27	5.93	39.5	79.0	18.6	58.1	197.6
69 55	10.650	21.30	31.95	42.60	53.25	63.90	74.55	85.20	95.85	639.0	1278.0	1917.0	2556.0	3195.1
56	.642	.28	.92	.57	.21	.85	.49	.13	.78	8.5	7.0	5.5	4.0	2.5
57	.633	.27	.90	.53	.17	.80	.43	.07	.70	8.0	6.0	4.0	52.0	90.0
58	.625	.25	.87	.50	.12	.75	.37	5.00	.62	7.5	4.9	2.5	49.9	87.4
59	.616	.23	.85	.47	.08	.70	.31	4.93	.55	7.0	3.9	10.9	7.9	4.9
69 60	10.608	21.22	31.82	42.43	53.04	63.65	74.25	84.86	95.47	636.5	1272.9	1909.4	2545.9	3182.4

Lat.	Latitude 69° to 70°—Meridional arcs.						Latitude 69°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 69° 30'		Value of 1'	Continuous sums of minutes from latitude 69° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
69 00	30.987			1859.21					
1	7	1	30.99	.22	1	1 859.2	0 1	666.9	0.1
2	7	2	61.98	.22	2	3 718.4	2	1 333.7	0.4
3	7	3	92.97	.23	3	5 577.7	3	2 000.6	0.8
4	7	4	123.95	.23	4	7 436.9	4	2 667.5	1.5
69 05	30.987	5	154.94	1859.23	5	9 296.1	0 5	3 334.3	2.3
6	7	6	185.93	.24	6	11 155.4	6	4 001.2	3.3
7	7	7	216.92	.24	7	13 014.6	7	4 668.1	4.4
8	7	8	247.91	.24	8	14 873.8	8	5 334.9	5.8
9	7	9	278.90	.25	9	16 733.1	9	6 001.8	7.3
69 10	30.988	10	309.89	1859.25	10	18 592.3	0 10	6 668.7	9.1
11	8	1	340.88	.26	1	20 451.6	15	10 003.0	20.4
12	8	2	371.86	.26	2	22 310.9	20	13 337.3	36.2
13	8	3	402.85	.26	3	24 170.1	25	16 671.5	56.6
14	8	4	433.84	.27	4	26 029.4	30	20 005.8	81.5
69 15	30.988	15	464.83	1859.27	15	27 888.6	0 35	23 340.0	110.9
16	8	6	495.82	.27	6	29 747.9	40	26 674.1	144.9
17	8	7	526.81	.28	7	31 607.2	45	30 008.2	183.3
18	8	8	557.80	.28	8	33 466.5	50	33 342.3	226.3
19	8	9	588.79	.28	9	35 325.8	55	36 676.3	273.9
69 20	30.988	20	619.77	1859.29	20	37 185.0	1 00	40 010.2	325.9
21	8	1	650.76	.29	1	39 044.3	05	43 344.0	382.5
22	8	2	681.75	.30	2	40 903.6	10	46 677.8	443.6
23	8	3	712.74	.30	3	42 762.9	15	50 011.5	509.3
24	8	4	743.73	.30	4	44 622.2	20	53 345.1	579.5
69 25	30.988	25	774.72	1859.31	25	46 481.5	1 25	56 678.6	654.2
26	8	6	805.71	.31	6	48 340.8	30	60 012.0	733.4
27	9	7	836.70	.31	7	50 200.1	35	63 345.3	817.2
28	9	8	867.68	.32	8	52 059.5	40	66 678.4	905.4
29	9	9	898.67	.32	9	53 918.8	45	70 011.5	998.2
69 30	30.989	30	929.66	1859.32	30	55 778.1	1 50	73 344.4	1 095.6
31	9	1	960.65	.33	1	57 637.4	55	76 677.1	1 197.4
32	9	2	991.64	.33	2	59 496.8	2 00	80 010	1 304
33	9	3	1 022.63	.34	3	61 356.1	3 00	119 988	2 933
34	9	4	1 053.62	.34	4	63 215.4	4 00	159 935	5 214
69 35	30.989	35	1 084.61	1859.34	35	65 074.8	5 00	199 839	8 145
36	9	6	1 115.59	.35	6	66 934.1	6 00	239 690	11 726
37	9	7	1 146.58	.35	7	68 793.5	7 00	279 477	15 956
38	9	8	1 177.57	.35	8	70 652.8	8 00	319 190	20 833
39	9	9	1 208.56	.36	9	72 512.2	9 00	358 818	26 357
69 40	30.989	40	1 239.55	1859.36	40	74 371.5	10 00	398 352	32 526
41	9	1	1 270.54	.36	1	76 230.9	11 00	437 779	39 338
42	89	2	1 301.52	.37	2	78 090.3	12 00	477 090	46 792
43	90	3	1 332.51	.37	3	79 949.6	13 00	516 275	54 885
44	0	4	1 363.50	.37	4	81 809.0	14 00	555 322	63 615
69 45	30.990	45	1 394.49	1859.38	45	83 668.4	15 00	594 222	72 981
46	0	6	1 425.48	.38	6	85 527.8	16 00	632 964	82 979
47	0	7	1 456.47	.39	7	87 387.1	17 00	671 538	93 607
48	0	8	1 487.46	.39	8	89 246.5	18 00	709 934	104 862
49	0	9	1 518.45	.39	9	91 105.9	19 00	748 142	116 741
69 50	30.990	50	1 549.44	1859.40	50	92 965.3	20 00	786 150	129 242
51	0	1	1 580.43	.40	1	94 824.7	21 00	823 950	142 359
52	0	2	1 611.41	.40	2	96 684.1	22 00	861 532	156 091
53	0	3	1 642.40	.41	3	98 543.5	23 00	898 884	170 434
54	0	4	1 673.39	.41	4	100 402.9	24 00	935 998	185 383
69 55	30.990	55	1 704.38	1859.41	55	102 262.4	25 00	972 864	200 935
56	0	6	1 735.37	.42	6	104 121.8	26 00	1 009 471	217 085
57	0	7	1 766.36	.42	7	105 981.2	27 00	1 045 810	233 830
58	0	8	1 797.35	.42	8	107 840.6	28 00	1 081 872	251 165
59	0	9	1 828.34	.43	9	109 700.0	29 00	1 117 646	269 085
69 60	30.991	60	1 859.32	1859.43	60	111 559.5	30 00	1 153 123	287 585

Latitude 70° to 71°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
70 00	10.608	21.22	31.82	42.43	53.04	63.65	74.25	84.86	95.47	636.5	1272.9	1909.4	2545.9	3182.4
1	.599	.20	.80	.40	3.00	.60	.20	.79	.39	6.0	1.9	7.9	3.8	79.8
2	.591	.18	.77	.36	2.96	.55	.14	.73	.32	5.5	70.9	6.4	41.8	7.3
3	.582	.16	.75	.33	.91	.49	.08	.66	.24	4.9	69.9	4.8	39.8	4.7
4	.574	.15	.72	.30	.87	.44	4.02	.59	.17	4.4	8.9	3.3	7.7	72.2
70 05	10.565	21.13	31.70	42.26	52.83	63.39	73.96	84.52	95.09	633.9	1267.9	1901.8	2535.7	3169.6
5	.557	.11	.67	.23	.79	.34	.90	.46	5.01	3.4	6.9	900.3	3.7	7.1
6	.549	.10	.65	.19	.74	.29	.84	.39	4.94	2.9	5.8	898.7	31.6	4.6
7	.540	.08	.62	.16	.70	.24	.78	.32	.86	2.4	4.8	7.2	29.6	62.0
8	.532	.06	.60	.13	.66	.19	.72	.25	.79	1.9	3.8	5.7	7.6	59.5
70 10	10.523	21.05	31.57	42.09	52.62	63.14	73.66	84.18	94.71	631.4	1262.8	1894.2	2525.5	3156.9
9	.515	.03	.54	.06	.57	.09	.60	.12	.63	0.9	1.8	2.6	3.5	4.4
11	.506	.01	.52	2.02	.53	3.04	.54	4.05	.55	30.4	60.8	91.1	21.5	51.8
12	.498	1.00	.49	1.99	.49	2.99	.48	3.98	.48	29.9	59.7	89.6	19.4	49.3
13	.489	0.98	.47	.96	.45	.93	.42	.91	.40	9.3	8.7	8.0	7.4	6.7
70 15	10.481	20.96	31.44	41.92	52.40	62.88	73.36	83.85	94.33	628.8	1257.7	1886.5	2515.4	3144.2
14	.472	.94	.42	.89	.36	.83	.31	.78	.25	8.3	6.7	5.0	3.3	41.7
15	.464	.93	.39	.85	.32	.78	.25	.71	.17	7.8	5.7	3.5	11.3	39.1
16	.455	.91	.37	.82	.28	.73	.19	.64	.10	7.3	4.6	1.9	09.3	6.6
17	.447	.89	.34	.79	.23	.68	.13	.57	4.02	6.8	3.6	80.4	7.2	4.0
70 20	10.438	20.88	31.31	41.75	52.19	62.63	73.07	83.51	93.94	626.3	1252.6	1878.9	2505.2	3131.5
18	.430	.86	.29	.72	.14	.58	3.01	.44	.87	5.8	1.6	7.4	3.1	28.9
19	.421	.84	.26	.68	.11	.53	2.95	.37	.79	5.3	50.6	5.8	501.1	6.4
20	.413	.83	.24	.65	.06	.48	.89	.30	.71	4.8	49.5	4.3	499.1	3.8
21	.404	.81	.21	.61	2.02	.43	.83	.23	.64	4.3	8.5	2.8	7.0	21.3
70 25	10.396	20.79	31.19	41.58	51.98	62.37	72.77	83.17	93.56	623.7	1247.5	1871.2	2495.0	3118.7
22	.387	.77	.16	.55	.94	.32	.71	.10	.49	3.2	6.5	69.7	2.9	6.2
23	.379	.76	.14	.51	.89	.27	.65	3.03	.41	2.7	5.5	8.2	90.9	3.6
24	.370	.74	.11	.48	.85	.22	.59	2.96	.33	2.2	4.4	6.7	88.9	11.1
25	.362	.72	.09	.45	.81	.17	.53	.89	.26	1.7	3.4	5.1	6.8	08.5
70 30	10.353	20.71	31.06	41.41	51.77	62.12	72.47	82.83	93.18	621.2	1242.4	1863.6	2484.8	3106.0
26	.345	.69	.03	.38	.72	.07	.41	.76	.10	0.7	1.4	2.1	2.7	3.4
27	.336	.67	1.01	.35	.68	2.02	.35	.69	3.03	20.2	40.4	60.5	80.7	100.9
28	.328	.66	0.98	.31	.64	1.97	.29	.62	2.95	19.7	39.3	59.0	78.7	098.3
29	.319	.64	.96	.28	.60	.92	.24	.55	.87	9.2	8.3	7.5	6.6	5.8
70 35	10.311	20.62	30.93	41.24	51.55	61.86	72.17	82.48	92.80	618.6	1237.3	1855.9	2474.6	3093.2
30	.302	.60	.91	.21	.51	.81	.12	.42	.72	8.1	6.3	4.4	2.5	90.7
31	.294	.59	.88	.17	.47	.76	.06	.35	.64	7.6	5.3	2.9	70.5	88.1
32	.285	.57	.86	.14	.43	.71	2.00	.28	.57	7.1	4.2	51.3	68.5	5.6
33	.277	.55	.83	.11	.38	.66	1.94	.21	.49	6.6	3.2	49.8	6.4	3.0
70 40	10.268	20.54	30.80	41.07	51.34	61.61	71.88	82.15	92.41	616.1	1232.2	1848.3	2464.4	3080.5
34	.260	.52	.78	.04	.30	.56	.82	.08	.34	5.6	1.2	6.8	2.3	77.9
35	.251	.50	.75	1.01	.26	.51	.76	2.01	.26	5.1	30.2	5.2	60.3	5.4
36	.243	.49	.73	0.97	.21	.46	.71	1.94	.18	4.6	29.1	3.7	58.3	2.8
37	.234	.47	.70	.94	.17	.41	.64	.87	.11	4.1	8.1	2.2	5.8	70.3
70 45	10.226	20.45	30.68	40.90	51.13	61.35	71.58	81.81	92.03	613.5	1227.1	1840.6	2454.2	3067.7
38	.217	.43	.65	.87	.09	.30	.52	.74	1.96	3.0	6.1	39.1	2.1	5.2
39	.209	.42	.63	.83	.04	.25	.46	.67	.88	2.5	5.1	7.6	50.1	2.6
40	.200	.40	.60	.80	1.00	.20	.40	.60	.80	2.0	4.0	6.0	48.0	60.0
41	.192	.38	.58	.77	0.96	.15	.34	.53	.73	1.5	3.0	4.5	6.0	57.5
70 50	10.183	20.37	30.55	40.73	50.92	61.10	71.28	81.46	91.65	611.0	1222.0	1833.0	2444.0	3054.9
42	.175	.35	.52	.70	.87	.05	.22	.40	.57	0.5	1.0	31.4	41.9	52.4
43	.166	.33	.50	.66	.83	1.00	.16	.33	.49	10.0	20.0	29.9	39.9	49.8
44	.158	.32	.47	.63	.79	0.95	.10	.26	.42	09.5	18.9	8.4	7.8	7.3
45	.149	.30	.45	.60	.75	.89	1.04	.19	.34	8.9	7.9	6.8	5.8	4.7
70 55	10.141	20.28	30.42	40.56	50.70	60.84	70.98	81.13	91.27	608.4	1216.9	1825.3	2433.7	3042.2
46	.132	.26	.40	.53	.66	.79	.93	1.06	.19	7.9	5.9	3.8	31.7	39.6
47	.124	.25	.37	.49	.62	.74	.87	0.99	.11	7.4	4.9	2.2	29.6	7.1
48	.115	.23	.34	.46	.58	.69	.81	.92	1.03	6.9	3.8	20.7	7.6	4.5
49	.106	.21	.32	.43	.53	.64	.75	.85	0.96	6.4	2.8	19.2	5.6	31.9
70 60	10.098	20.20	30.29	40.39	50.49	60.59	70.69	80.78	90.88	605.9	1211.8	1817.6	2423.5	3029.4

Lat.	Latitude 70° to 71°—Meridional arcs.						Latitude 70°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 70° 30'		Value of 1'	Continuous sums of minutes from latitude 70° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
70 00	30.991			1859.43					
1	1	1	30.99	.44	1	1 859.4	0 1	636.5	0.1
2	1	2	61.98	.44	2	3 718.9	2	1 272.9	0.3
3	1	3	92.98	.44	3	5 578.3	3	1 909.4	0.8
4	1	4	123.97	.45	4	7 437.8	4	2 545.9	1.4
70 05	30.991	5	154.96	1859.45	5	9 297.2	0 5	3 182.4	2.2
6	1	6	185.95	.45	6	11 156.7	6	3 818.8	3.1
7	1	7	216.95	.46	7	13 016.1	7	4 455.3	4.3
8	1	8	247.94	.46	8	14 875.6	8	5 091.8	5.6
9	1	9	278.93	.46	9	16 735.0	9	5 728.2	7.0
70 10	30.991	10	309.92	1859.47	10	18 594.5	0 10	6 364.7	8.7
11	1	1	340.92	.47	1	20 454.0	15	9 547.0	19.5
12	1	2	371.91	.47	2	22 313.4	20	12 729.3	34.8
13	1	3	402.90	.48	3	24 172.9	25	15 911.6	54.4
14	1	4	433.89	.48	4	26 032.4	30	19 093.9	78.3
70 15	30.991	15	464.88	1859.49	15	27 891.9	0 35	22 276.1	106.6
16	1	6	495.88	.49	6	29 751.4	40	25 458.3	139.2
17	2	7	526.87	.49	7	31 610.9	45	28 640.4	176.2
18	2	8	557.86	.50	8	33 470.3	50	31 822.5	217.5
19	2	9	588.85	.50	9	35 329.8	55	35 004.5	263.1
70 20	30.992	20	619.85	1859.50	20	37 189.3	1 00	38 186.5	313.1
21	2	1	650.84	.51	1	39 048.9	05	41 368.4	367.5
22	2	2	681.83	.51	2	40 908.4	10	44 550.2	426.2
23	2	3	712.82	.51	3	42 767.9	15	47 731.9	489.3
24	2	4	743.81	.52	4	44 627.4	20	50 913.6	556.7
70 25	30.992	25	774.81	1859.52	25	46 486.9	1 25	54 095.1	628.5
26	2	6	805.80	.52	6	48 346.4	30	57 276.5	704.6
27	2	7	836.79	.53	7	50 206.0	35	60 457.9	785.0
28	2	8	867.78	.53	8	52 065.5	40	63 639.1	869.8
29	2	9	898.78	.53	9	53 925.0	45	66 820.2	959.0
70 30	30.992	30	929.78	1859.54	30	55 784.5	1 50	70 001.2	1 052.5
31	2	1	960.76	.54	1	57 644.1	55	73 182.0	1 150.3
32	2	2	991.75	.54	2	59 503.6	2 00	76 363	1 253
33	2	3	1 022.75	.55	3	61 363.2	3 00	114 518	2 818
34	3	4	1 053.74	.55	4	63 222.7	4 00	152 643	5 009
70 35	30.993	35	1 084.73	1859.55	35	65 082.3	5 00	190 727	7 824
36	3	6	1 115.72	.56	6	66 941.8	6 00	228 760	11 265
37	3	7	1 146.71	.56	7	68 801.4	7 00	266 731	15 328
38	3	8	1 177.71	.57	8	70 661.0	8 00	304 630	20 013
39	3	9	1 208.70	.57	9	72 520.5	9 00	342 447	25 320
70 40	30.993	40	1 239.69	1859.57	40	74 380.1	10 00	380 172	31 246
41	3	1	1 270.68	.58	1	76 239.7	11 00	417 796	37 789
42	3	2	1 301.68	.58	2	78 099.2	12 00	455 306	44 949
43	3	3	1 332.67	.58	3	79 958.8	13 00	492 694	52 723
44	3	4	1 363.66	.59	4	81 818.4	14 00	529 950	61 110
70 45	30.993	45	1 394.65	1859.59	45	83 678.0	15 00	567 063	70 106
46	3	6	1 425.65	.59	6	85 537.6	16 00	604 023	79 709
47	3	7	1 456.64	.60	7	87 397.2	17 00	640 821	89 918
48	3	8	1 487.63	.60	8	89 256.8	18 00	677 447	100 728
49	3	9	1 518.62	.60	9	91 116.4	19 00	713 891	112 138
70 50	30.993	50	1 549.61	1859.61	50	92 976.0	20 00	750 142	124 144
51	3	1	1 580.61	.61	1	94 835.6	21 00	786 191	136 743
52	4	2	1 611.60	.61	2	96 695.2	22 00	822 030	149 931
53	4	3	1 642.59	.62	3	98 554.8	23 00	857 647	163 705
54	4	4	1 673.58	.62	4	100 414.5	24 00	893 033	178 062
70 55	30.994	55	1 704.58	1859.62	55	102 274.1	25 00	928 179	192 997
56	4	6	1 735.57	.63	6	104 133.7	26 00	963 076	208 506
57	4	7	1 766.56	.63	7	105 993.3	27 00	997 713	224 585
58	4	8	1 797.55	.63	8	107 853.0	28 00	1 032 082	241 231
59	4	9	1 828.55	.64	9	109 712.6	29 00	1 066 174	258 438
70 60	30.994	60	1 859.54	1859.64	60	111 572.2	30 00	1 099 979	276 201

Latitude 71° to 72°—Arcs of the parallel in meters.														
Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
° /														
71 00	10.098	20.20	30.29	40.39	50.49	60.59	70.69	80.78	90.88	605.9	1211.8	1817.6	2423.5	3029.4
1	.089	.18	.27	.36	.45	.54	.63	.71	.80	5.4	10.7	16.1	21.5	26.8
2	.081	.16	.24	.32	.40	.49	.57	.65	.73	4.9	9.7	14.6	19.4	24.3
3	.072	.14	.22	.29	.36	.43	.51	.58	.65	4.3	8.7	13.0	17.4	21.7
4	.064	.13	.19	.25	.32	.38	.45	.51	.57	3.8	7.7	11.5	15.3	19.1
71 05	10.055	20.11	30.17	40.22	50.28	60.33	70.39	80.44	90.50	603.3	1206.6	1810.0	2413.3	3016.6
6	.047	.09	.14	.19	.23	.28	.33	.37	.42	2.8	5.6	8.4	11.2	14.0
7	.038	.08	.12	.15	.19	.23	.27	.30	.34	2.2	4.6	6.9	9.2	11.5
8	.030	.06	.09	.12	.15	.18	.21	.24	.27	1.7	3.6	5.3	7.1	8.9
9	.021	.04	.06	.09	.11	.13	.15	.17	.19	1.3	2.6	3.8	5.1	6.4
71 10	10.013	20.03	30.04	40.05	50.06	60.08	70.09	80.10	90.11	600.8	1201.5	1802.3	2403.0	3003.8
11	.004	.01	.01	.02	.02	.02	.03	.03	.04	600.2	200.5	800.7	401.0	3001.2
12	9.996	19.99	29.99	39.98	49.98	59.97	69.97	79.97	89.96	599.7	199.5	799.2	398.9	2998.7
13	.987	.97	.96	.95	.93	.92	.91	.90	.88	9.2	8.4	7.7	6.9	6.1
14	.979	.96	.94	.91	.89	.87	.85	.83	.81	8.7	7.4	6.1	4.8	3.6
71 15	9.970	19.94	29.91	39.88	49.85	59.82	69.79	79.76	89.73	598.2	1196.4	1794.6	2392.8	2991.0
16	.961	.92	.88	.85	.81	.77	.73	.69	.65	7.7	5.4	3.1	90.7	88.4
17	.953	.91	.86	.81	.77	.72	.67	.62	.58	7.2	4.3	1.5	88.7	5.9
18	.944	.89	.83	.78	.72	.67	.61	.55	.50	6.7	3.3	90.0	6.6	3.3
19	.936	.87	.81	.74	.68	.61	.55	.49	.42	6.1	2.3	88.4	4.6	80.7
71 20	9.927	19.85	29.78	39.71	49.64	59.56	69.49	79.42	89.35	595.6	1191.3	1786.9	2382.5	2978.2
21	.919	.84	.76	.67	.59	.51	.43	.35	.27	5.1	90.2	5.4	80.5	5.6
22	.910	.82	.73	.64	.55	.46	.37	.28	.19	4.6	89.2	3.8	78.4	3.1
23	.902	.80	.71	.61	.51	.41	.31	.21	.12	4.1	8.2	2.3	6.4	70.5
24	.893	.79	.68	.57	.47	.36	.25	.14	9.04	3.6	7.2	80.8	4.3	67.9
71 25	9.885	19.77	29.65	39.54	49.42	59.31	69.19	79.08	88.96	593.1	1186.1	1779.2	2372.3	2965.4
26	.876	.75	.63	.50	.38	.26	.13	9.01	.88	2.6	5.1	7.7	70.2	2.8
27	.867	.73	.60	.47	.34	.20	.07	8.94	.81	2.0	4.1	6.1	68.2	60.2
28	.859	.72	.58	.44	.30	.15	9.01	.87	.73	1.5	3.1	4.6	6.1	57.7
29	.850	.70	.55	.40	.25	.10	8.95	.80	.65	1.0	2.0	3.1	4.1	5.1
71 30	9.842	19.68	29.53	39.37	49.21	59.05	68.89	78.73	88.58	590.5	1181.0	1771.5	2362.0	2952.5
31	.833	.67	.50	.33	.17	9.00	.83	.67	.50	90.0	80.0	70.0	60.0	50.0
32	.825	.65	.47	.30	.12	8.95	.77	.60	.42	89.5	79.0	68.4	57.9	47.4
33	.816	.63	.45	.26	.08	9.00	.71	.53	.35	9.0	7.9	6.9	5.9	4.8
34	.808	.62	.42	.23	9.04	.85	.65	.46	.27	8.5	6.9	5.4	3.8	42.3
71 35	9.799	19.60	29.40	39.20	48.99	58.79	68.59	78.39	88.20	587.9	1175.9	1763.8	2351.8	2939.7
36	.790	.58	.37	.16	.95	.74	.53	.32	.12	7.4	4.9	2.3	49.7	7.1
37	.782	.56	.35	.13	.91	.69	.47	.26	8.04	6.9	3.8	60.7	7.7	4.6
38	.773	.55	.32	.09	.87	.64	.41	.19	7.96	6.4	2.8	59.2	5.6	32.0
39	.765	.53	.30	.06	.82	.59	.35	.12	.89	5.9	1.8	7.7	3.6	29.5
71 40	9.756	19.51	29.27	39.03	48.78	58.54	68.29	78.05	87.81	585.4	1170.8	1756.1	2341.5	2926.9
41	.748	.50	.24	8.99	.74	.49	.23	7.98	.73	4.9	69.7	4.6	39.5	4.3
42	.739	.48	.22	.96	.69	.43	.17	.91	.66	4.3	8.7	3.0	7.4	21.7
43	.731	.46	.19	.92	.65	.38	.11	.85	.58	3.8	7.7	1.5	5.3	19.2
44	.722	.44	.17	.89	.61	.33	8.05	.78	.50	3.3	6.6	50.0	3.3	6.6
71 45	9.713	19.43	29.14	38.85	48.57	58.28	67.99	77.71	87.42	582.8	1165.6	1748.4	2331.2	2914.0
46	.705	.41	.11	.82	.52	.23	.93	.64	.35	2.3	4.6	6.9	29.2	11.5
47	.696	.39	.09	.79	.48	.18	.87	.57	.27	1.8	3.6	5.3	7.1	8.9
48	.688	.38	.06	.75	.44	.13	.81	.50	.19	1.3	2.5	3.8	5.1	6.3
49	.679	.36	.04	.72	.40	.08	.76	.43	.11	0.8	1.5	2.3	3.0	3.8
71 50	9.671	19.34	29.01	38.68	48.35	58.02	67.69	77.37	87.04	580.2	1160.5	1740.7	2321.0	2901.2
51	.662	.32	8.99	.65	.31	7.97	.63	.30	6.06	79.7	59.4	39.2	18.9	898.6
52	.653	.31	.96	.61	.27	.92	.57	.23	.88	9.2	8.4	7.6	6.8	6.0
53	.645	.29	.93	.58	.22	.87	.51	.16	.81	8.7	7.4	6.1	4.8	3.5
54	.636	.27	.91	.55	.18	.82	.45	.09	.73	8.2	6.4	4.5	2.7	90.9
71 55	9.628	19.26	28.88	38.51	48.14	57.77	67.39	77.02	86.65	577.7	1155.3	1733.0	2310.7	2888.3
56	.619	.24	.86	.48	.10	.72	.34	6.95	.57	7.2	4.3	31.5	08.6	5.8
57	.611	.22	.83	.44	.05	.66	.27	.89	.50	6.6	3.3	29.9	6.6	3.2
58	.602	.20	.81	.41	8.01	.61	.21	.82	.42	6.1	2.2	8.4	4.5	80.6
59	.593	.19	.78	.37	7.96	.56	.15	.75	.34	5.6	1.2	6.8	2.4	78.0
71 60	9.585	19.17	28.75	38.34	47.92	57.51	67.09	76.68	86.26	575.1	1150.2	1725.3	2300.4	2875.5

Lat.	Latitude 71° to 72°—Meridional arcs.						Latitude 71°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 71° 30'		Value of 1'	Continuous sums of minutes from latitude 71° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
71 00	30.994			1859.64			0 1	605.9	0.1
1	4	1	31.00	.64	1	1 859.6	0 2	1 211.8	0.3
2	4	2	61.99	.65	2	3 719.3	0 3	1 817.6	0.7
3	4	3	92.99	.65	3	5 578.9	0 4	2 423.5	1.3
4	4	4	123.98	.65	4	7 438.6	0 5	3 029.4	2.1
71 05	30.994	5	154.98	1859.66	5	9 298.3	0 6	3 635.3	3.0
6	4	6	185.97	.66	6	11 157.9	0 7	4 241.1	4.1
7	4	7	216.97	.66	7	13 017.6	0 8	4 847.0	5.3
8	4	8	247.97	.67	8	14 877.2	0 9	5 452.9	6.7
9	5	9	278.96	.67	9	16 736.9			
71 10	30.995	10	309.96	1859.67	10	18 596.6	0 10	6 058.8	8.3
11	5	1	340.95	.68	1	20 456.3	0 15	9 088.1	18.7
12	5	2	371.95	.68	2	22 315.9	0 20	12 117.5	33.3
13	5	3	402.94	.68	3	24 175.6	0 25	15 146.8	52.1
14	5	4	433.94	.69	4	26 035.3	0 30	18 176.1	75.0
71 15	30.995	15	464.94	1859.69	15	27 895.0	0 35	21 205.4	102.1
16	5	6	495.93	.69	6	29 754.7	0 40	24 234.6	133.3
17	5	7	526.93	.70	7	31 614.4	0 45	27 263.8	168.7
18	5	8	557.92	.70	8	33 474.1	0 50	30 292.9	208.3
19	5	9	588.92	.70	9	35 333.8	0 55	33 322.0	252.0
71 20	30.995	20	619.91	1859.71	20	37 193.5	1 00	36 351.0	299.9
21	5	1	650.91	.71	1	39 053.2	1 05	39 379.9	352.0
22	5	2	681.91	.71	2	40 912.9	1 10	42 408.8	408.3
23	5	3	712.90	.72	3	42 772.7	1 15	45 437.5	468.7
24	5	4	743.90	.72	4	44 632.4	1 20	48 466.2	533.2
71 25	30.995	25	774.89	1859.72	25	46 492.1	1 25	51 494.9	602.0
26	5	6	805.89	.73	6	48 351.8	1 30	54 523.4	674.9
27	6	7	836.88	.73	7	50 211.6	1 35	57 551.8	751.9
28	6	8	867.88	.73	8	52 071.3	1 40	60 580.1	833.2
29	6	9	898.88	.74	9	53 931.0	1 45	63 608.3	918.5
71 30	30.996	30	929.87	1859.74	30	55 790.8	1 50	66 636.3	1 008.1
31	6	1	960.87	.74	1	57 650.5	1 55	69 664.3	1 101.8
32	6	2	991.86	.75	2	59 510.3	2 00	72 692	1 200
33	6	3	1 022.86	.75	3	61 370.0	2 05	75 720.2	1 300
34	6	4	1 053.85	.75	4	63 229.8	2 10	78 748.2	1 400
71 35	30.996	35	1 084.85	1859.76	35	65 089.5	2 15	81 776.2	1 500
36	6	5	1 115.84	.76	5	66 949.3	2 20	84 804.2	1 600
37	6	6	1 146.84	.76	6	68 809.1	2 25	87 832.2	1 700
38	6	7	1 177.84	.77	7	70 668.8	2 30	90 860.2	1 800
39	6	8	1 208.83	.77	8	72 528.6	2 35	93 888.2	1 900
71 40	30.996	40	1 239.83	1859.77	40	74 388.4	2 40	96 916.2	2 000
41	6	1	1 270.82	.78	1	76 248.1	2 45	99 944.2	2 100
42	6	2	1 301.82	.78	2	78 107.9	2 50	102 972.2	2 200
43	6	3	1 332.81	.78	3	79 967.7	2 55	106 000.2	2 300
44	6	4	1 363.81	.79	4	81 827.5	3 00	109 028.2	2 400
71 45	30.997	45	1 394.81	1859.79	45	83 687.3	3 05	112 056.2	2 500
46	7	5	1 425.80	.79	5	85 547.1	3 10	115 084.2	2 600
47	7	6	1 456.80	.80	6	87 406.9	3 15	118 112.2	2 700
48	7	7	1 487.79	.80	7	89 266.7	3 20	121 140.2	2 800
49	7	8	1 518.79	.80	8	91 126.5	3 25	124 168.2	2 900
71 50	30.997	50	1 549.78	1859.81	50	92 986.3	3 30	127 196.2	3 000
51	7	1	1 580.78	.81	1	94 846.1	3 35	130 224.2	3 100
52	7	2	1 611.78	.81	2	96 705.9	3 40	133 252.2	3 200
53	7	3	1 642.77	.82	3	98 565.7	3 45	136 280.2	3 300
54	7	4	1 673.77	.82	4	100 425.5	3 50	139 308.2	3 400
71 55	30.997	55	1 704.76	1859.82	55	102 285.4	3 55	142 336.2	3 500
56	7	5	1 735.76	.83	5	104 145.2	4 00	145 364.2	3 600
57	7	6	1 766.75	.83	6	106 005.0	4 05	148 392.2	3 700
58	7	7	1 797.75	.83	7	107 864.9	4 10	151 420.2	3 800
59	7	8	1 828.75	.84	8	109 724.7	4 15	154 448.2	3 900
71 60	30.997	60	1 859.74	1859.84	60	111 584.5	4 20	157 476.2	4 000

Latitude 72° to 73°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
72 00	9.585	19.17	28.75	38.34	47.92	57.51	67.09	76.68	86.26	575.1	1150.2	1725.3	2300.4	2875.5
1	.576	.15	.73	.31	.88	.46	7.03	.61	.19	4.6	49.2	3.7	298.3	2.9
2	.568	.14	.70	.27	.84	.41	6.97	.54	.11	4.1	8.1	2.2	6.3	70.3
3	.559	.12	.68	.24	.80	.36	.92	.47	6.03	3.6	7.1	20.7	4.2	67.8
4	.551	.10	.65	.20	.75	.30	.85	.41	5.96	3.0	6.1	19.1	2.1	5.2
72 05	9.542	19.08	28.63	38.17	47.71	57.25	66.79	76.34	85.88	572.5	1145.0	1717.6	2290.1	2862.6
6	.533	.07	.60	.13	.67	.20	.73	.27	.80	2.0	4.0	6.0	88.0	60.0
7	.525	.05	.58	.10	.63	.15	.67	.20	.72	1.5	3.0	4.5	6.0	57.5
8	.516	.03	.55	.07	.58	.10	.61	.13	.65	1.0	2.0	2.9	3.9	4.9
9	.508	.02	.52	.03	.54	.05	.55	.06	.57	70.5	40.9	11.4	81.8	2.3
72 10	9.499	19.00	28.50	38.00	47.50	56.99	66.49	75.99	85.49	569.9	1139.9	1709.8	2279.8	2849.7
11	.491	.8.98	.47	7.96	.45	.94	.43	.93	.42	9.4	8.9	8.3	7.7	7.2
12	.482	.96	.45	.93	.41	.89	.37	.86	.34	8.9	7.8	6.8	5.7	4.6
13	.473	.95	.42	.89	.37	.84	.31	.79	.26	8.4	6.8	5.2	3.6	42.0
14	.465	.93	.39	.86	.32	.79	.25	.72	.18	7.9	5.8	3.7	71.5	39.4
72 15	9.456	18.91	28.37	37.83	47.28	56.74	66.19	75.65	85.11	567.4	1134.7	1702.1	2269.5	2836.9
16	.448	.90	.34	.79	.24	.69	.13	.58	5.03	6.9	3.7	700.6	7.4	4.3
17	.439	.88	.32	.76	.20	.63	.07	.51	4.95	6.3	2.7	699.0	5.4	31.7
18	.430	.86	.29	.72	.15	.58	6.01	.44	.87	5.8	1.7	7.5	3.3	29.1
19	.422	.84	.27	.69	.11	.53	5.95	.38	.80	5.3	30.6	5.9	61.2	6.6
72 20	9.413	18.83	28.24	37.65	47.07	56.48	65.89	75.31	84.72	564.8	1129.6	1694.4	2259.2	2824.0
21	.405	.81	.21	.62	7.02	.43	.83	.24	.64	4.3	8.6	2.8	7.1	21.4
22	.396	.79	.19	.58	6.98	.38	.77	.17	.56	3.8	7.5	91.3	5.1	18.8
23	.387	.77	.16	.55	.94	.32	.71	.10	.49	3.2	6.5	89.7	3.0	6.2
24	.379	.76	.14	.52	.90	.27	.65	5.03	.41	2.7	5.5	8.2	50.9	3.7
72 25	9.370	18.74	28.11	37.48	46.85	56.22	65.59	74.96	84.33	562.2	1124.4	1686.6	2248.9	2811.1
26	.362	.72	.08	.45	.81	.17	.53	.89	.26	1.7	3.4	5.1	6.8	08.5
27	.353	.71	.06	.41	.77	.12	.47	.82	.18	1.2	2.4	3.6	4.7	5.9
28	.344	.69	.03	.38	.72	.07	.41	.75	.10	0.7	1.3	2.0	2.7	3.3
29	.336	.67	8.01	.34	.68	6.02	.35	.69	4.02	60.2	20.3	80.5	40.6	800.8
72 30	9.327	18.65	27.98	37.31	46.64	55.96	65.29	74.62	83.95	559.6	1119.3	1678.9	2238.6	2798.2
31	.319	.64	.96	.27	.59	.91	.23	.55	.87	9.1	8.2	7.4	6.5	5.6
32	.310	.62	.93	.24	.55	.86	.17	.48	.79	8.6	7.2	5.8	4.4	3.0
33	.301	.60	.90	.21	.51	.81	.11	.41	.71	8.1	6.2	4.3	2.4	90.4
34	.293	.59	.88	.17	.47	.76	5.05	.34	.64	7.6	5.1	2.7	30.3	87.9
72 35	9.284	18.57	27.85	37.14	46.42	55.71	64.99	74.27	83.56	557.1	1114.1	1671.2	2228.2	2785.3
36	.276	.55	.83	.10	.38	.65	.93	.21	.48	6.5	3.1	69.6	6.2	2.7
37	.267	.53	.80	.07	.34	.60	.87	.14	.40	6.0	2.0	8.1	4.1	80.1
38	.258	.51	.77	.03	.29	.55	.81	.07	.32	5.5	1.0	6.5	2.0	77.5
39	.250	.50	.75	7.00	.25	.50	.75	4.00	.25	5.0	10.0	5.0	20.0	5.0
72 40	9.241	18.48	27.72	36.97	46.21	55.45	64.69	73.93	83.17	554.5	1109.0	1663.4	2217.9	2772.4
41	.233	.47	.70	.93	.16	.40	.63	.86	.09	4.0	7.9	1.9	5.8	69.8
42	.224	.45	.67	.90	.12	.34	.57	.79	3.02	3.4	6.9	60.3	3.8	7.2
43	.215	.43	.65	.86	.08	.29	.51	.72	2.94	2.9	5.8	58.8	11.7	4.6
44	.207	.41	.62	.83	6.03	.24	.45	.65	.86	2.4	4.8	7.2	09.6	62.0
72 45	9.198	18.40	27.60	36.79	45.99	55.19	64.39	73.59	82.78	551.9	1103.8	1655.7	2207.6	2759.5
46	.190	.38	.57	.76	.95	.14	.33	.52	.71	1.4	2.7	4.1	5.5	6.9
47	.181	.36	.54	.72	.91	.09	.27	.45	.63	0.9	1.7	2.6	3.4	4.3
48	.172	.34	.52	.69	.86	5.03	.21	.38	.55	50.3	100.7	51.0	201.4	51.7
49	.164	.33	.49	.65	.82	4.98	.15	.31	.47	49.8	99.6	49.5	199.3	49.1
72 50	9.155	18.31	27.47	36.62	45.78	54.93	64.09	73.24	82.40	549.3	1098.6	1647.9	2197.2	2746.5
51	.147	.29	.44	.59	.73	.88	4.03	.17	.32	8.8	7.6	6.4	5.2	4.0
52	.138	.28	.41	.55	.69	.83	3.97	.10	.24	8.3	6.5	4.8	3.1	41.4
53	.129	.26	.39	.52	.65	.78	.91	3.03	.16	7.8	5.5	3.3	91.0	38.8
54	.121	.24	.36	.48	.60	.72	.84	2.97	.09	7.2	4.5	1.7	89.0	6.2
72 55	9.112	18.22	27.34	36.45	45.56	54.67	63.78	72.90	82.01	546.7	1093.4	1640.2	2186.9	2733.6
56	.103	.21	.31	.41	.52	.62	.72	.83	1.93	6.2	2.4	38.6	4.8	31.0
57	.095	.19	.28	.38	.47	.57	.66	.76	.85	5.7	1.4	7.1	2.8	28.4
58	.086	.17	.26	.35	.43	.52	.60	.69	.78	5.2	90.4	5.5	80.7	5.9
59	.078	.16	.23	.31	.39	.47	.54	.62	.70	4.7	89.3	4.0	78.6	3.3
72 60	9.069	18.14	27.21	36.28	45.35	54.41	63.48	72.55	81.62	544.1	1088.3	1632.4	2176.5	2720.7

Lat	Latitude 72° to 73°—Meridional arcs.						Latitude 72°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 72° 30'		Value of 1'	Continuous sums of minutes from latitude 72° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
72 30	30.997			1859.84					
1	7	1	31.00	.84	1	1 859.8	0 1	575.1	0.1
2	7	2	62.00	.85	2	3 719.7	2	1 150.2	0.3
3	7	3	93.00	.85	3	5 579.5	3	1 725.3	0.7
4	8	4	124.00	.85	4	7 439.4	4	2 300.4	1.3
72 35	30.998	5	154.99	1859.86	5	9 299.2	0 5	2 875.5	2.0
6	8	6	185.99	.86	6	11 159.1	6	3 450.6	2.9
7	8	7	216.99	.86	7	13 019.0	7	4 025.7	3.9
8	8	8	247.99	.87	8	14 878.8	8	4 600.8	5.1
9	8	9	278.99	.87	9	16 738.7	9	5 175.9	6.4
72 40	30.998	10	309.99	1859.87	10	18 598.6	0 10	5 751.0	8.0
11	8	1	340.99	.88	1	20 458.4	15	8 626.4	17.9
12	8	2	371.99	.88	2	22 318.3	20	11 501.9	31.8
13	8	3	402.99	.88	3	24 178.2	25	14 377.3	49.7
14	8	4	433.99	.89	4	26 038.1	30	17 252.7	71.6
72 45	30.998	15	464.98	1859.89	15	27 898.0	0 35	20 128.1	97.5
16	8	6	495.98	.89	6	29 757.9	40	23 003.4	127.3
17	8	7	526.98	.89	7	31 617.7	45	25 878.7	161.1
18	8	8	557.98	.90	8	33 477.6	50	28 753.9	198.9
19	8	9	588.99	.90	9	35 337.5	55	31 629.1	240.6
72 50	30.998	20	619.98	1859.90	20	37 197.4	1 00	34 504.2	286.4
21	8	1	650.98	.91	1	39 057.3	05	37 379.2	336.1
22	9	2	681.98	.91	2	40 917.3	10	40 254.2	389.8
23	9	3	712.98	.91	3	42 777.2	15	43 129.1	447.5
24	9	4	743.97	.92	4	44 637.1	20	46 003.9	509.1
72 55	30.999	25	774.97	1859.92	25	46 497.0	1 25	48 878.7	574.7
26	9	6	805.97	.92	6	48 356.9	30	51 753.3	644.3
27	9	7	836.97	.93	7	50 216.8	35	54 627.9	717.9
28	9	8	867.97	.93	8	52 076.8	40	57 502.3	795.5
29	9	9	898.97	.93	9	53 936.7	45	60 376.6	877.0
72 30	30.999	30	929.97	1859.94	30	55 796.6	1 50	63 250.8	962.5
31	9	1	960.97	.94	1	57 656.6	55	66 124.9	1 052.0
32	9	2	991.97	.94	2	59 516.5	2 00	68 999	1 145
33	9	3	1 022.96	.95	3	61 376.5	3 00	103 475	2 577
34	9	4	1 053.96	.95	4	63 236.4	4 00	137 922	4 580
72 35	30.999	35	1 084.96	1859.95	35	65 096.4	5 00	172 331	7 155
36	9	6	1 115.96	.96	6	66 956.3	6 00	206 693	10 301
37	9	7	1 146.96	.96	7	68 816.3	7 00	240 997	14 017
38	9	8	1 177.96	.96	8	70 676.2	8 00	275 236	18 302
39	9	9	1 208.96	.96	9	72 536.2	9 00	309 398	23 154
72 40	30.999	40	1 239.96	1859.97	40	74 396.2	10 00	343 475	28 572
41	31.000	1	1 270.96	.97	1	76 256.1	11 00	377 458	34 556
42	0	2	1 301.96	.97	2	78 116.1	12 00	411 337	41 103
43	0	3	1 332.95	.98	3	79 976.1	13 00	445 102	48 211
44	0	4	1 363.95	.98	4	81 836.1	14 00	478 745	55 879
72 45	31.000	45	1 394.95	1859.98	45	83 696.1	15 00	512 255	64 104
46	0	6	1 425.95	.99	6	85 556.1	16 00	545 625	72 884
47	0	7	1 456.95	.99	7	87 416.0	17 00	578 844	82 217
48	0	8	1 487.95	59.99	8	89 276.0	18 00	611 904	92 100
49	0	9	1 518.95	60.00	9	91 136.0	19 00	644 795	102 530
72 50	31.000	50	1 549.95	1860.00	50	92 996.0	20 00	677 509	113 505
51	0	1	1 580.95	.00	1	94 856.0	21 00	710 036	125 021
52	0	2	1 611.94	.01	2	96 716.0	22 00	742 367	137 075
53	0	3	1 642.94	.01	3	98 576.0	23 00	774 494	149 665
54	0	4	1 673.94	1860.01	4	100 436.0	24 00	806 407	162 786
72 55	31.000	55	1 704.94	.01	55	102 296.1	25 00	838 098	176 435
56	0	6	1 735.94	.02	6	104 156.1	26 00	869 558	190 608
57	0	7	1 766.94	.02	7	106 016.1	27 00	900 779	205 301
58	0	8	1 797.94	.02	8	107 876.1	28 00	931 751	220 511
59	0	9	1 828.94	.03	9	109 736.1	29 00	962 467	236 232
72 60	31.001	60	1 859.94	1860.03	0	111 596.2	30 00	992 918	252 461

Latitude 73° to 74°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
73 00	9.069	18.14	27.21	36.28	45.35	54.41	63.48	72.55	81.62	90.69	1088.3	1632.4	2176.5	2720.7
1	.060	.12	.18	.24	.30	.36	.42	.48	.54	3.6	7.2	30.9	4.5	18.1
2	.052	.10	.16	.21	.26	.31	.36	.41	.47	3.1	6.2	29.3	2.4	5.5
3	.043	.09	.13	.17	.22	.26	.30	.34	.39	2.6	5.2	7.7	70.3	2.9
4	.034	.07	.10	.14	.17	.21	.24	.27	.31	2.1	4.1	6.2	68.3	10.3
73 05	9.026	18.05	27.08	36.10	45.13	54.15	63.18	72.21	81.23	90.26	1083.1	1624.6	2166.2	2707.7
6	.017	.03	.05	.07	.09	.10	.12	.14	.16	1.0	2.1	3.1	4.1	5.2
7	.009	.02	.03	.04	.04	.05	.06	.07	.08	0.5	1.0	1.5	2.0	2.6
8	9.000	8.00	7.00	6.00	5.00	4.00	3.00	2.00	1.00	40.0	80.0	20.0	60.0	700.0
9	8.991	7.98	6.97	5.97	4.96	3.95	2.94	1.93	0.92	39.5	79.0	18.4	57.9	697.4
73 10	8.983	17.97	26.95	35.93	44.91	53.90	62.88	71.86	80.84	89.82	1077.9	1616.9	2155.8	2694.8
11	.974	.95	.92	.90	.87	.84	.82	.79	.77	8.4	6.9	5.3	3.8	92.2
12	.965	.93	.90	.86	.83	.79	.76	.72	.69	7.9	5.8	3.8	51.7	89.6
13	.957	.91	.87	.83	.78	.74	.70	.65	.61	7.4	4.8	2.2	49.6	7.0
14	.948	.90	.84	.79	.74	.69	.64	.58	.53	6.9	3.8	0.7	7.5	4.4
73 15	8.939	17.88	26.82	35.76	44.70	53.64	62.58	71.52	80.45	89.38	1072.7	1609.1	2145.5	2681.8
16	.931	.86	.79	.72	.65	.59	.52	.45	.38	5.9	1.7	7.6	3.4	79.3
17	.922	.84	.77	.69	.61	.53	.46	.38	.30	5.3	70.7	6.0	41.3	6.7
18	.914	.83	.74	.65	.57	.48	.40	.31	.22	4.8	69.6	4.4	39.3	4.1
19	.905	.81	.72	.62	.52	.43	.33	.24	.15	4.3	8.6	2.9	7.2	71.5
73 20	8.896	17.79	26.69	35.59	44.48	53.38	62.27	71.17	80.07	88.96	1067.6	1601.3	2135.1	2668.9
21	.888	.78	.66	.55	.44	.33	.21	.10	.79.99	3.3	6.5	599.8	3.0	6.3
22	.879	.76	.64	.52	.39	.27	.15	1.03	.91	2.7	5.5	8.2	31.0	3.7
23	.870	.74	.61	.48	.35	.22	.09	0.96	.83	2.2	4.4	6.7	28.9	61.1
24	.862	.72	.59	.45	.31	.17	2.03	.89	.76	1.7	3.4	5.1	6.8	58.5
73 25	8.853	17.71	26.56	35.41	44.26	53.12	61.97	70.82	79.68	88.53	1062.4	1593.6	2124.7	2655.9
26	.844	.69	.53	.38	.22	.07	.91	.75	.60	0.7	1.3	2.0	2.7	3.3
27	.836	.67	.51	.34	.18	3.01	.85	.69	.52	30.1	60.3	90.4	20.6	50.7
28	.827	.65	.48	.31	.14	2.96	.79	.62	.45	29.6	59.3	88.9	18.5	48.2
29	.819	.64	.46	.27	.09	.91	.73	.55	.37	9.1	8.2	7.3	6.4	5.6
73 30	8.810	17.62	26.43	35.24	44.05	52.86	61.67	70.48	79.29	88.10	1057.2	1585.8	2114.4	2643.0
31	.801	.60	.40	.21	4.01	.81	.61	.41	.21	8.1	6.2	4.2	2.3	40.4
32	.793	.59	.38	.17	3.96	.76	.55	.34	.13	7.6	5.1	2.7	10.2	37.8
33	.784	.57	.35	.14	.92	.70	.49	.27	9.06	7.0	4.1	81.1	08.1	5.2
34	.775	.55	.33	.10	.88	.65	.43	.20	8.98	6.5	3.0	79.6	6.1	2.6
73 35	8.767	17.53	26.30	35.07	43.83	52.60	61.37	70.13	78.90	87.67	1052.0	1578.0	2104.0	2630.0
36	.758	.52	.27	.03	.79	.55	.31	.06	.82	5.5	51.0	6.4	101.9	27.4
37	.749	.50	.25	5.00	.75	.50	.25	69.99	.74	5.0	49.9	4.9	099.8	4.8
38	.741	.48	.22	4.96	.70	.44	.18	.93	.67	4.4	8.9	3.3	7.8	22.2
39	.732	.46	.20	.93	.66	.39	.12	.86	.59	3.9	7.8	1.8	5.7	19.6
73 40	8.723	17.45	26.17	34.89	43.62	52.34	61.07	69.79	78.51	87.22	1046.8	1570.2	2093.6	2617.0
41	.715	.43	.14	.86	.57	.29	1.00	.72	.43	2.9	5.8	68.7	91.5	4.4
42	.706	.41	.12	.82	.53	.24	0.94	.65	.35	2.4	4.7	7.1	89.5	11.8
43	.697	.39	.09	.79	.49	.18	.88	.58	.28	1.8	3.7	5.5	7.4	09.2
44	.689	.38	.07	.75	.44	.13	.82	.51	.20	1.3	2.7	4.0	5.3	6.6
73 45	8.680	17.36	26.04	34.72	43.40	52.08	60.76	69.44	78.12	86.80	1041.6	1562.4	2083.2	2604.0
46	.671	.34	6.01	.69	.36	2.03	.70	.37	8.04	20.3	40.6	60.9	81.2	601.4
47	.663	.33	5.99	.65	.31	1.98	.64	.30	7.96	19.8	39.5	59.3	79.1	598.8
48	.654	.31	.96	.62	.27	.92	.58	.23	.89	9.2	8.5	7.7	7.0	6.2
49	.645	.29	.94	.58	.23	.87	.52	.16	.81	8.7	7.5	6.2	4.9	3.6
73 50	8.637	17.27	25.91	34.55	43.18	51.82	60.46	69.09	77.73	86.36	1036.4	1554.6	2072.8	2591.0
51	.628	.26	.88	.51	.14	.77	.40	.02	.65	7.7	5.4	3.1	70.8	88.4
52	.619	.24	.86	.48	.10	.72	.34	.8.95	.57	7.2	4.3	51.5	68.7	5.8
53	.611	.22	.83	.44	.05	.66	.27	.89	.50	6.6	3.3	49.9	6.6	3.2
54	.602	.20	.81	.41	3.01	.61	.22	.82	.42	6.1	2.3	8.4	4.5	80.6
73 55	8.593	17.19	25.78	34.37	42.97	51.56	60.15	68.75	77.34	85.93	1031.2	1546.8	2062.4	2578.0
56	.585	.17	.75	.34	.92	.51	.09	.68	.26	5.1	30.2	5.3	60.4	5.4
57	.576	.15	.73	.30	.88	.46	.03	.61	.18	4.6	29.1	3.7	58.3	2.8
58	.567	.13	.70	.27	.84	.40	.97	.54	.11	4.0	8.1	2.1	6.2	70.2
59	.559	.12	.68	.23	.79	.35	.91	.47	.7.03	3.5	7.1	40.6	4.1	67.6
73 60	8.550	17.10	25.65	34.20	42.75	51.30	59.85	68.40	76.95	85.50	1026.0	1539.0	2052.0	2565.0

Lat.	Latitude 73° to 74°—Meridional arcs.						Latitude 73°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 73° 30'		Value of 1'	Continuous sums of minutes from latitude 73° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
73 00	31.001			1860.03					
1	1	1	31.00	.03	1	1 860.0	0 1	544.1	0.1
2	1	2	62.00	.04	2	3 720.1	2	1 088.3	0.3
3	1	3	93.01	.04	3	5 580.1	3	1 632.4	0.7
4	1	4	124.01	.04	4	7 440.2	4	2 176.6	1.2
73 05	31.001	5	155.01	1860.05	5	9 300.2	0 5	2 720.7	1.9
6	1	6	186.01	.05	6	11 160.2	6	3 264.8	2.7
7	1	7	217.01	.05	7	13 020.3	7	3 809.0	3.7
8	1	8	248.02	.05	8	14 880.4	8	4 353.1	4.8
9	1	9	279.02	.06	9	16 740.4	9	4 897.2	6.1
73 10	31.001	10	310.02	1860.06	10	18 600.5	0 10	5 441.4	7.6
11	1	1	341.02	.06	11	20 460.5	15	8 162.0	17.0
12	1	2	372.02	.07	2	22 320.6	20	10 882.7	30.3
13	1	3	403.03	.07	3	24 180.7	25	13 603.3	47.3
14	1	4	434.03	.07	4	26 040.7	30	16 323.9	68.1
73 15	31.001	15	465.03	1860.08	15	27 900.8	0 35	19 044.5	92.7
16	1	6	496.03	.08	6	29 760.9	40	21 765.0	121.1
17	1	7	527.03	.08	7	31 621.0	45	24 485.5	153.3
18	1	8	558.04	.09	8	33 481.1	50	27 206.0	189.2
19	1	9	589.04	.09	9	35 341.1	55	29 926.4	228.9
73 20	31.002	20	620.04	1860.09	20	37 201.2	1 00	32 646.7	272.4
21	2	1	651.04	.09	1	39 061.3	05	35 367.0	319.7
22	2	2	682.04	.10	2	40 921.4	10	38 087.2	370.8
23	2	3	713.05	.10	3	42 781.5	15	40 807.3	425.7
24	2	4	744.05	.10	4	44 641.6	20	43 527.4	484.3
73 25	31.002	25	775.05	1860.11	25	46 501.7	1 25	46 247.3	546.8
26	2	6	806.05	.11	6	48 361.8	30	48 967.2	613.0
27	2	7	837.05	.11	7	50 221.9	35	51 687.0	683.0
28	2	8	868.06	.12	8	52 082.1	40	54 406.7	756.8
29	2	9	899.06	.12	9	53 942.2	45	57 126.3	834.3
73 30	31.002	30	930.06	1860.12	30	55 802.3	1 50	59 845.8	915.7
31	2	1	961.06	.12	1	57 662.4	55	62 565.1	1 000.8
32	2	2	992.06	.13	2	59 522.5	2 00	65 284	1 090
33	2	3	1 023.07	.13	3	61 382.7	3 00	67 904	2 452
34	2	4	1 054.07	.13	4	63 242.8	4 00	70 524	4 358
73 35	31.002	35	1 085.07	1860.14	35	65 102.9	5 00	73 144.9	6 808
36	2	5	1 116.07	.14	5	66 963.1	6 00	75 765.0	9 800
37	2	7	1 147.07	.14	7	68 823.2	7 00	78 385.1	13 335
38	2	8	1 178.08	.15	8	70 683.4	8 00	81 005.2	17 412
39	2	9	1 209.08	.15	9	72 543.5	9 00	83 625.3	22 028
73 40	31.003	40	1 240.08	1860.15	40	74 403.7	10 00	86 245.4	27 183
41	3	1	1 271.08	.15	1	76 263.8	11 00	88 865.5	32 875
42	3	2	1 302.09	.16	2	78 124.0	12 00	91 485.6	39 103
43	3	3	1 333.09	.16	3	79 984.1	13 00	94 105.7	45 865
44	3	4	1 364.09	.16	4	81 844.3	14 00	96 725.8	53 160
73 45	31.003	45	1 395.09	1860.17	45	83 704.5	15 00	99 345.9	60 984
46	3	6	1 426.09	.17	6	85 564.6	16 00	101 966.0	69 336
47	3	7	1 457.10	.17	7	87 424.8	17 00	104 586.1	78 214
48	3	8	1 488.10	.18	8	89 285.0	18 00	107 206.2	87 615
49	3	9	1 519.10	.18	9	91 145.2	19 00	109 826.3	97 537
73 50	31.003	50	1 550.10	1860.18	50	93 005.4	20 00	112 446.4	107 976
51	3	1	1 581.10	.18	1	94 865.5	21 00	115 066.5	118 930
52	3	2	1 612.11	.19	2	96 725.7	22 00	117 686.6	130 396
53	3	3	1 643.11	.19	3	98 585.9	23 00	120 306.7	142 370
54	3	4	1 674.11	.19	4	100 446.1	24 00	122 926.8	154 850
73 55	31.003	55	1 705.11	1860.20	55	102 306.3	25 00	125 546.9	167 831
56	3	5	1 736.11	.20	5	104 166.5	26 00	128 167.0	181 311
57	3	7	1 767.12	.20	7	106 026.7	27 00	130 787.1	195 285
58	3	8	1 798.12	.21	8	107 886.9	28 00	133 407.2	209 749
59	3	9	1 829.12	.21	9	109 747.1	29 00	136 027.3	224 700
73 60	31.004	60	1 860.12	1860.21	60	111 607.3	30 00	138 647.4	240 134

Latitude 74° to 75°—Arcs of the parallel in meters.														
Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
74 00	8.550	17.10	25.65	34.20	42.75	51.30	59.85	68.40	76.95	513.0	1026.0	1539.0	2052.0	2565.0
1	.541	.08	.62	.17	.71	.25	.79	.33	.87	2.5	5.0	7.5	50.0	62.4
2	.533	.07	.60	.13	.66	.20	.73	.26	.80	2.0	3.9	5.9	47.9	59.8
3	.524	.05	.57	.10	.62	.14	.67	.19	.72	1.4	2.9	4.3	5.8	7.2
4	.515	.03	.55	.06	.58	.09	.61	.12	.64	0.9	1.9	2.8	3.7	4.6
74 05	8.507	17.01	25.52	34.03	42.53	51.04	59.55	68.06	76.56	510.4	1020.8	1531.2	2041.6	2552.0
6	.498	7.00	.49	3.99	.49	0.99	.49	7.98	.48	09.9	19.8	29.7	39.5	49.4
7	.489	6.98	.47	.96	.45	.94	.42	.92	.40	9.4	8.7	8.1	7.5	6.8
8	.481	.96	.44	.92	.41	.88	.36	.85	.33	8.8	7.7	6.5	5.4	4.2
9	.472	.94	.42	.89	.36	.83	.30	.78	.25	8.3	6.6	5.0	3.3	41.6
74 10	8.463	16.93	25.39	33.85	42.32	50.78	59.24	67.71	76.17	507.8	1015.6	1523.4	2031.2	2539.0
11	.455	.91	.36	.82	.28	.73	.18	.64	.09	7.3	4.6	1.8	29.1	6.4
12	.446	.89	.34	.78	.23	.68	.12	.57	6.01	6.8	3.5	20.3	7.0	3.8
13	.437	.87	.31	.75	.19	.62	.06	.50	5.94	6.2	2.5	18.7	5.0	31.2
14	.429	.86	.29	.71	.14	.57	9.00	.43	.86	5.7	1.4	7.2	2.9	28.6
74 15	8.420	16.84	25.26	33.68	42.10	50.52	58.94	67.36	75.78	505.2	1010.4	1515.6	2020.8	2526.0
16	.411	.82	.23	.65	.06	.47	.88	.29	.70	4.7	09.4	4.0	18.7	3.4
17	.403	.81	.21	.61	2.01	.42	.82	.22	.62	4.2	8.3	2.5	6.6	20.8
18	.394	.79	.18	.58	1.97	.36	.76	.15	.55	3.6	7.3	10.9	4.5	18.2
19	.385	.77	.16	.54	.92	.31	.70	.08	.47	3.1	6.2	09.3	2.5	5.6
74 20	8.377	16.75	25.13	33.51	41.88	50.26	58.64	67.01	75.39	502.6	1005.2	1507.8	2010.4	2513.0
21	.368	.74	.10	.47	.84	.21	.58	6.94	.31	2.1	4.1	6.2	08.3	10.4
22	.359	.72	.08	.44	.80	.16	.52	.87	.23	1.6	3.1	4.7	6.2	07.8
23	.351	.70	.05	.40	.75	.10	.46	.80	.16	1.0	2.1	3.1	4.1	5.2
24	.342	.68	.03	.37	.71	.05	.39	.73	.08	0.5	1.0	1.5	2.0	2.6
74 25	8.333	16.67	25.00	33.33	41.67	50.00	58.33	66.67	75.00	500.0	1000.0	1500.0	2000.0	2500.0
26	.324	.65	4.97	.30	.62	49.95	.27	.60	4.92	499.5	998.9	498.4	1997.9	497.3
27	.316	.63	.95	.26	.58	.89	.21	.53	.84	8.9	7.9	6.8	5.8	4.7
28	.307	.61	.92	.23	.53	.84	.15	.46	.76	8.4	6.9	5.3	3.7	92.1
29	.298	.60	.90	.19	.49	.79	.09	.39	.69	7.9	5.8	3.7	91.6	89.5
74 30	8.290	16.58	24.87	33.16	41.45	49.74	58.03	66.32	74.61	497.4	994.8	1492.2	1989.5	2486.9
31	.281	.56	.84	.12	.41	.69	7.97	.25	.53	6.9	3.7	90.6	7.5	4.3
32	.272	.54	.82	.09	.36	.63	.91	.18	.45	6.3	2.7	89.0	5.4	81.7
33	.264	.53	.79	.05	.32	.58	.85	.11	.37	5.8	1.6	7.5	3.3	79.1
34	.255	.51	.77	3.02	.27	.53	.79	6.04	.30	5.3	90.6	5.9	81.2	6.5
74 35	8.246	16.49	24.74	32.99	41.23	49.48	57.72	65.97	74.22	494.8	989.6	1484.3	1979.1	2473.9
36	.238	.48	.71	.95	.19	.43	.66	.90	.14	4.3	8.5	2.8	7.0	71.3
37	.229	.46	.69	.92	.14	.37	.60	.83	4.06	3.7	7.5	81.2	4.9	68.7
38	.220	.44	.66	.88	.10	.32	.54	.76	3.98	3.2	6.4	79.6	2.8	6.1
39	.212	.42	.64	.85	.06	.27	.48	.69	.91	2.7	5.4	8.1	70.8	3.5
74 40	8.203	16.41	24.61	32.81	41.01	49.22	57.42	65.62	73.82	492.2	984.3	1476.5	1968.7	2460.8
41	.194	.39	.58	.78	0.97	.16	.36	.55	.75	1.6	3.3	4.9	6.6	58.2
42	.185	.37	.56	.74	.92	.11	.30	.48	.67	1.1	2.2	3.4	4.5	5.6
43	.177	.35	.53	.71	.88	.06	.24	.41	.59	0.6	1.2	1.8	2.4	3.0
44	.168	.34	.50	.67	.84	9.01	.18	.34	.51	90.1	80.2	70.2	60.3	50.4
74 45	8.159	16.32	24.48	32.64	40.80	48.96	57.11	65.27	73.43	489.6	979.1	1468.7	1958.2	2447.8
46	.151	.30	.45	.60	.75	.90	7.05	.21	.36	9.0	8.1	7.1	6.1	5.2
47	.142	.28	.43	.57	.71	.85	6.99	.14	.28	8.5	7.0	5.5	4.1	2.6
48	.133	.27	.40	.53	.67	.80	.93	.07	.20	8.0	6.0	4.0	52.0	40.0
49	.124	.25	.37	.50	.62	.75	.87	5.00	.12	7.5	4.9	2.4	49.9	37.3
74 50	8.116	16.23	24.35	32.46	40.58	48.69	56.81	64.93	73.04	486.9	973.9	1460.8	1947.8	2434.7
51	.107	.21	.32	.43	.54	.64	.75	.86	2.96	6.4	2.8	59.3	5.7	32.1
52	.098	.20	.30	.39	.49	.59	.69	.79	.88	5.9	1.8	7.7	3.6	29.5
53	.090	.18	.27	.36	.45	.54	.63	.72	.81	5.4	70.8	6.1	41.5	6.9
54	.081	.16	.24	.32	.40	.49	.57	.65	.73	4.9	69.7	4.6	39.4	4.3
74 55	8.072	16.14	24.22	32.29	40.36	48.43	56.51	64.58	72.65	484.3	968.7	1453.0	1937.3	2421.7
56	.064	.13	.19	.25	.32	.38	.44	.51	.57	3.8	7.6	51.4	5.2	19.1
57	.055	.11	.16	.22	.27	.33	.38	.44	.49	3.3	6.6	49.9	3.2	6.4
58	.046	.09	.14	.18	.23	.28	.32	.37	.41	2.8	5.5	8.3	31.1	3.8
59	.037	.07	.11	.15	.19	.22	.26	.30	.34	2.2	4.5	6.7	29.0	11.2
74 60	8.020	16.06	24.09	32.11	40.14	48.17	56.20	64.23	72.26	481.7	963.4	1445.2	1926.9	2408.6

Lat.	Latitude 74° to 75°—Meridional arcs.						Latitude 74°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 74° 30'		Value of 1'	Continuous sums of minutes from latitude 74° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
74 00	31.004			1860.21			0 1		
1	4	1	31.00	.21	1	1 860.2	0 1	513.0	0.1
2	4	2	62.01	.22	2	3 720.4	2	1 026.0	0.3
3	4	3	93.01	.22	3	5 580.6	3	1 539.0	0.6
4	4	4	124.02	.22	4	7 440.9	4	2 052.0	1.1
74 05	31.004	5	155.02	1860.23	5	9 301.1	0 5	2 565.1	1.8
6	4	6	186.03	.23	6	11 161.3	6	3 078.1	2.6
7	4	7	217.03	.23	7	13 021.5	7	3 591.1	3.5
8	4	8	248.04	.23	8	14 881.8	8	4 104.1	4.6
9	4	9	279.04	.24	9	16 742.0	9	4 617.1	5.8
74 10	31.004	10	310.05	1860.24	10	18 602.3	0 10	5 130.1	7.2
11	4	1	341.05	.24	1	20 462.5	15	7 695.1	16.1
12	4	2	372.06	.25	2	22 322.7	20	10 260.1	28.7
13	4	3	403.06	.25	3	24 183.0	25	12 825.1	44.8
14	4	4	434.07	.25	4	26 043.2	30	15 390.1	64.5
74 15	31.004	15	465.07	1860.25	15	27 903.5	0 35	17 955.0	87.9
16	4	6	496.08	.26	6	29 763.7	40	20 519.9	114.8
17	4	7	527.08	.26	7	31 624.0	45	23 084.8	145.2
18	4	8	558.09	.26	8	33 484.3	50	25 649.6	179.3
19	4	9	589.09	.27	9	35 344.5	55	28 214.4	217.0
74 20	31.004	20	620.10	1860.27	20	37 204.8	1 00	30 779.1	258.2
21	5	1	651.10	.27	1	39 065.1	05	33 343.8	303.0
22	5	2	682.11	.27	2	40 925.3	10	35 908.4	351.4
23	5	3	713.11	.28	3	42 785.6	15	38 472.9	403.4
24	5	4	744.12	.28	4	44 645.9	20	41 037.3	459.0
74 25	31.005	25	775.12	1860.28	25	46 506.2	1 25	43 601.7	518.2
26	5	6	806.13	.29	6	48 366.5	30	46 166.0	580.9
27	5	7	837.13	.29	7	50 226.8	35	48 730.1	647.3
28	5	8	868.14	.29	8	52 087.0	40	51 294.2	717.2
29	5	9	899.14	.29	9	53 947.3	45	53 858.2	790.7
74 30	31.005	30	930.15	1860.30	30	55 807.6	1 50	56 422.1	867.8
31	5	1	961.15	.30	1	57 667.9	55	58 985.9	948.5
32	5	2	992.16	.30	2	59 528.2	2 00	61 550	1 033
33	5	3	1 023.16	.31	3	61 388.5	3 00	92 303	2 324
34	5	4	1 054.17	.31	4	63 248.8	4 00	123 030	4 130
74 35	31.005	35	1 085.17	1860.31	35	65 109.2	5 00	153 722	6 451
36	5	6	1 116.18	.31	6	66 969.5	6 00	184 372	9 288
37	5	7	1 147.18	.32	7	68 829.8	7 00	214 969	12 638
38	5	8	1 178.19	.32	8	70 690.1	8 00	245 506	16 500
39	5	9	1 209.19	.32	9	72 550.4	9 00	275 973	20 875
74 40	31.005	40	1 240.20	1860.33	40	74 410.8	10 00	306 364	25 760
41	5	1	1 271.20	.33	1	76 271.1	11 00	336 667	31 154
42	6	2	1 302.21	.33	2	78 131.4	12 00	366 876	37 056
43	6	3	1 333.21	.33	3	79 991.7	13 00	396 982	43 464
44	6	4	1 364.22	.34	4	81 852.1	14 00	426 976	50 376
74 45	31.006	45	1 395.22	1860.34	45	83 712.4	15 00	456 850	57 790
46	6	6	1 426.23	.34	6	85 572.8	16 00	486 596	65 705
47	6	7	1 457.23	.35	7	87 433.1	17 00	516 204	74 117
48	6	8	1 488.24	.35	8	89 293.5	18 00	545 667	83 025
49	6	9	1 519.24	.35	9	91 153.8	19 00	574 976	92 426
74 50	31.006	50	1 550.25	1860.35	50	93 014.2	20 00	604 124	102 317
51	6	1	1 581.25	.36	1	94 874.5	21 00	633 102	112 696
52	6	2	1 612.26	.36	2	96 734.9	22 00	661 901	123 559
53	6	3	1 643.26	.36	3	98 595.2	23 00	690 514	134 904
54	6	4	1 674.27	.37	4	100 455.6	24 00	718 933	146 728
74 55	31.006	55	1 705.27	1860.37	55	102 316.0	25 00	747 149	159 027
56	6	6	1 736.28	.37	6	104 176.3	26 00	775 155	171 797
57	6	7	1 767.28	.37	7	106 036.7	27 00	802 943	185 035
58	6	8	1 798.29	.38	8	107 897.1	28 00	830 505	198 738
59	6	9	1 829.29	.38	9	109 757.5	29 00	857 833	212 901
74 60	31.006	60	1 860.30	1860.38	60	111 617.9	30 00	884 920	227 520

Latitude 75° to 76°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
• /														
75 00	8.029	16.06	24.09	32.11	40.14	48.17	56.20	64.23	72.26	481.7	963.4	1445.2	1926.9	2408.6
1	.020	.04	.06	.08	.10	.12	.14	.16	.18	1.2	2.4	3.6	4.8	6.0
2	.011	.02	.03	.04	.06	.07	.08	.09	.10	0.7	1.4	2.0	2.7	3.4
3	8.003	6.01	4.01	2.01	40.01	8.02	6.02	4.02	2.02	80.2	60.3	40.5	20.6	400.8
4	7.994	5.99	3.98	1.98	39.97	7.96	5.96	3.95	1.95	79.6	59.3	38.9	18.5	398.2
75 05	7.985	15.97	23.96	31.94	39.92	47.91	55.89	63.88	71.87	479.1	958.2	1437.3	1916.4	2395.5
6	.976	.95	.93	.91	.88	.86	.83	.81	.79	8.6	7.2	5.8	4.3	2.9
7	.968	.94	.90	.87	.84	.81	.77	.74	.71	8.1	6.1	4.2	2.2	90.3
8	.959	.92	.88	.84	.80	.75	.71	.67	.63	7.5	5.1	2.6	10.2	87.7
9	.950	.90	.85	.80	.75	.70	.65	.60	.55	7.0	4.0	31.0	08.1	5.1
75 10	7.942	15.88	23.82	31.77	39.71	47.65	55.59	63.53	71.47	476.5	953.0	1429.5	1906.0	2382.5
11	.933	.87	.80	.73	.66	.60	.53	.46	.39	6.0	1.9	7.9	3.9	79.8
12	.924	.85	.77	.70	.62	.54	.47	.39	.32	5.4	50.9	6.3	901.8	7.2
13	.915	.83	.75	.66	.58	.49	.41	.32	.24	4.9	49.8	4.8	899.7	4.6
14	.907	.81	.72	.63	.53	.44	.35	.25	.16	4.4	8.8	3.2	7.6	2.0
75 15	7.898	15.80	23.69	31.59	39.49	47.39	55.29	63.18	71.08	473.9	947.8	1421.6	1895.5	2369.4
16	.889	.78	.67	.56	.45	.34	.22	.11	1.00	3.4	6.7	20.1	3.4	6.8
17	.880	.76	.64	.52	.40	.28	.16	3.04	0.92	2.8	5.7	18.5	91.3	4.1
18	.872	.74	.61	.49	.36	.23	.10	2.97	.85	2.3	4.6	6.9	89.2	61.5
19	.863	.73	.59	.45	.31	.18	5.04	.90	.77	1.8	3.6	5.3	7.1	58.9
75 20	7.854	15.71	23.56	31.42	39.27	47.13	54.98	62.83	70.69	471.3	942.5	1413.8	1885.0	2356.3
21	.846	.69	.54	.38	.23	.07	.92	.76	.61	0.7	1.5	2.2	2.9	3.7
22	.837	.67	.51	.35	.18	7.02	.86	.69	.53	70.2	40.4	10.6	80.8	51.1
23	.828	.66	.48	.31	.14	6.97	.80	.62	.45	69.7	39.4	09.1	78.8	48.4
24	.819	.64	.46	.28	.10	.92	.74	.55	.37	9.2	8.3	7.5	6.7	5.8
75 25	7.811	15.62	23.43	31.24	39.05	46.86	54.67	62.49	70.30	468.6	937.3	1405.9	1874.6	2343.2
26	.802	.60	.41	.21	9.01	.81	.61	.42	.22	8.1	6.2	4.3	2.5	40.6
27	.793	.59	.38	.17	8.97	.76	.55	.35	.14	7.6	5.2	2.8	70.4	38.0
28	.784	.57	.35	.14	.92	.71	.49	.28	70.06	7.1	4.1	401.2	68.3	5.3
29	.776	.55	.33	.10	.88	.65	.43	.21	69.98	6.5	3.1	399.6	6.2	2.7
75 30	7.767	15.53	23.30	31.07	38.84	46.60	54.37	62.14	69.90	466.0	932.0	1398.1	1864.1	2330.1
31	.758	.52	.27	.03	.79	.55	.31	.07	.82	5.5	31.0	6.5	62.0	27.5
32	.750	.50	.25	1.00	.75	.50	.25	2.00	.74	5.0	29.9	4.9	59.9	4.9
33	.741	.48	.22	0.96	.70	.44	.19	1.93	.67	4.4	8.9	3.3	7.8	22.2
34	.732	.46	.20	.93	.66	.39	.12	.86	.59	3.9	7.8	1.8	5.7	19.6
75 35	7.723	15.45	23.17	30.89	38.62	46.34	54.06	61.79	69.51	463.4	926.8	1390.2	1853.6	2317.0
36	.715	.43	.14	.86	.57	.29	4.00	.72	.43	2.9	5.8	88.6	51.5	4.4
37	.706	.41	.12	.82	.53	.24	3.94	.65	.35	2.4	4.7	7.1	49.4	11.8
38	.697	.39	.09	.79	.49	.18	.88	.58	.28	1.8	3.7	5.5	7.3	09.1
39	.688	.38	.07	.75	.44	.13	.82	.51	.20	1.3	2.6	3.9	5.2	6.5
75 40	7.680	15.36	23.04	30.72	38.40	46.08	53.76	61.44	69.12	460.8	921.6	1382.3	1843.1	2303.9
41	.671	.34	3.01	.68	.36	6.03	.70	.37	9.04	60.3	20.5	80.8	41.0	301.3
42	.662	.32	2.99	.65	.31	5.97	.64	.30	8.96	59.7	19.5	79.2	38.9	298.7
43	.653	.31	.96	.61	.27	.92	.57	.23	.88	9.2	8.4	7.6	6.8	6.0
44	.645	.29	.93	.58	.22	.87	.51	.16	.80	8.7	7.4	6.0	4.7	3.4
75 45	7.636	15.27	22.91	30.54	38.18	45.82	53.45	61.09	68.72	458.2	916.3	1374.5	1832.6	2290.8
46	.627	.25	.88	.51	.14	.76	.39	1.02	.65	7.6	5.3	2.9	30.5	88.2
47	.618	.24	.86	.47	.09	.71	.33	0.95	.57	7.1	4.2	71.3	28.4	5.5
48	.610	.22	.83	.44	.05	.66	.27	.88	.49	6.6	3.2	69.8	6.3	2.9
49	.601	.20	.80	.40	8.00	.61	.21	.81	.41	6.1	2.1	8.2	4.2	80.3
75 50	7.592	15.18	22.78	30.37	37.96	45.55	53.15	60.74	68.33	455.5	911.1	1366.6	1822.1	2277.7
51	.583	.17	.75	.33	.92	.50	.08	.67	.25	5.0	10.0	5.0	20.0	5.0
52	.575	.15	.72	.30	.87	.45	3.02	.60	.17	4.5	09.0	3.5	17.9	72.4
53	.566	.13	.70	.26	.83	.40	2.96	.53	.09	4.0	7.9	1.9	5.8	69.8
54	.557	.11	.67	.23	.79	.34	.90	.46	8.02	3.4	6.9	60.3	3.7	7.2
75 55	7.548	15.10	22.65	30.19	37.74	45.29	52.84	60.39	67.94	452.9	905.8	1358.7	1811.6	2264.5
56	.540	.08	.62	.16	.70	.24	.78	.32	.86	2.4	04.8	7.2	09.5	61.9
57	.531	.06	.59	.12	.65	.19	.72	.25	.78	1.9	03.7	5.6	7.4	59.3
58	.522	.04	.57	.09	.61	.13	.65	.18	.70	1.3	02.7	4.0	5.3	6.7
59	.513	.03	.54	.05	.57	.08	.59	.11	.62	0.8	01.6	2.4	3.2	4.0
75 60	7.505	15.01	22.51	30.02	37.52	45.03	52.53	60.04	67.54	450.3	900.6	1350.9	1801.1	2251.4

Lat.	Latitude 75° to 76°—Meridional arcs.						Latitude 75°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 75° 30'		Value of 1'	Continuous sums of minutes from latitude 75° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
75 00	31.006			1860.38					
1	6	1	31.01	.38	1	1 860.4	0 1	481.7	0.1
2	6	2	62.02	.39	2	3 720.8	2	963.4	0.3
3	6	3	93.02	.39	3	5 581.2	3	1 445.2	0.6
4	7	4	124.03	.39	4	7 441.5	4	1 926.9	1.1
75 05	31.007	5	155.04	1860.40	5	9 301.9	0 5	2 408.6	1.7
6	7	6	186.05	.40	6	11 162.3	6	2 890.3	2.4
7	7	7	217.05	.40	7	13 022.7	7	3 372.1	3.3
8	7	8	248.06	.40	8	14 883.1	8	3 853.8	4.3
9	7	9	279.07	.41	9	16 743.5	9	4 335.5	5.5
75 10	31.007	10	310.08	1860.41	10	18 604.0	0 10	4 817.2	6.8
11	7	1	341.08	.41	1	20 464.4	15	7 225.8	15.2
12	7	2	372.09	.41	2	22 324.8	20	9 634.4	27.1
13	7	3	403.10	.42	3	24 185.2	25	12 043.0	42.3
14	7	4	434.11	.42	4	26 045.6	30	14 451.5	60.9
75 15	31.007	15	465.12	1860.42	15	27 906.0	0 35	16 860.0	82.9
16	7	6	496.12	.43	6	29 766.5	40	19 268.5	108.3
17	7	7	527.13	.43	7	31 626.9	45	21 676.9	137.0
18	7	8	558.14	.43	8	33 487.3	50	24 085.3	169.2
19	7	9	589.15	.43	9	35 347.8	55	26 493.7	204.7
75 20	31.007	20	620.15	1860.44	20	37 208.2	1 00	28 902.0	243.6
21	7	1	651.16	.44	1	39 068.6	05	31 310.2	285.9
22	7	2	682.17	.44	2	40 929.1	10	33 718.4	331.6
23	7	3	713.18	.44	3	42 789.5	15	36 126.5	380.7
24	7	4	744.19	.45	4	44 650.0	20	38 534.5	433.1
75 25	31.007	25	775.19	1860.45	25	46 510.4	1 25	40 942.5	489.0
26	8	6	806.20	.45	6	48 370.9	30	43 350.4	548.1
27	8	7	837.21	.46	7	50 231.3	35	45 758.2	610.7
28	8	8	868.22	.46	8	52 091.8	40	48 165.9	676.7
29	8	9	899.22	.46	9	53 952.2	45	50 573.5	746.1
75 30	31.008	30	930.23	1860.46	30	55 812.7	1 50	52 981.0	818.8
31	8	1	961.24	.47	1	57 673.2	55	55 388.4	894.9
32	8	2	992.25	.47	2	59 533.6	2 00	57 796	975
33	8	3	1 023.25	.47	3	61 394.1	3 00	86 673	2 192
34	8	4	1 054.26	.47	4	63 254.6	4 00	115 526	3 897
75 35	31.008	35	1 085.27	1860.48	35	65 115.0	5 00	144 346	6 087
36	8	6	1 116.28	.48	6	66 975.5	6 00	173 124	8 763
37	8	7	1 147.29	.48	7	68 836.0	7 00	201 854	11 924
38	8	8	1 178.29	.48	8	70 696.5	8 00	230 526	15 569
39	8	9	1 209.30	.49	9	72 557.0	9 00	259 133	19 697
75 40	31.008	40	1 240.31	1860.49	40	74 417.5	10 00	287 666	24 306
41	8	1	1 271.32	.49	1	76 278.0	11 00	316 117	29 395
42	8	2	1 302.32	.50	2	78 138.4	12 00	344 479	34 964
43	8	3	1 333.33	.50	3	79 998.9	13 00	372 742	41 010
44	8	4	1 364.34	.50	4	81 859.4	14 00	400 900	47 531
75 45	31.008	45	1 395.35	1860.50	45	83 719.9	15 00	428 944	54 526
46	8	6	1 426.36	.51	6	85 580.5	16 00	456 866	61 993
47	8	7	1 457.36	.51	7	87 441.0	17 00	484 658	69 930
48	9	8	1 488.37	.51	8	89 301.5	18 00	512 312	78 334
49	9	9	1 519.38	.51	9	91 162.0	19 00	539 821	87 203
75 50	31.009	50	1 550.39	1860.52	50	93 022.5	20 00	567 176	96 534
51	9	1	1 581.39	.52	1	94 883.0	21 00	594 370	106 325
52	9	2	1 612.40	.52	2	96 743.6	22 00	621 395	116 574
53	9	3	1 643.41	.52	3	98 604.1	23 00	648 243	127 276
54	9	4	1 674.42	.53	4	100 464.6	24 00	674 907	138 430
75 55	31.009	55	1 705.42	1860.53	55	102 325.1	25 00	701 380	150 031
56	9	6	1 736.43	.53	6	104 185.7	26 00	727 653	162 077
57	9	7	1 767.44	.53	7	106 046.2	27 00	753 719	174 564
58	9	8	1 798.45	.54	8	107 906.7	28 00	779 571	187 489
59	9	9	1 829.46	.54	9	109 767.3	29 00	805 203	200 848
75 60	31.009	60	1 860.46	1860.54	60	111 627.8	30 00	830 604	214 637

Latitude 76° to 77°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
76 00	7.505	15.01	22.51	30.02	37.52	45.03	52.53	60.04	67.54	450.3	900.6	1350.9	1801.1	2251.4
1	.490	4.99	.49	29.98	.48	4.98	.47	59.97	.46	49.8	899.5	49.3	799.0	48.8
2	.487	.97	.46	.95	.44	.92	.41	.90	.38	9.2	8.5	7.7	6.9	6.2
3	.478	.96	.43	.91	.39	.87	.35	.83	.30	8.7	7.4	6.1	4.8	3.5
4	.470	.94	.41	.88	.35	.82	.29	.76	.23	8.2	6.4	4.5	2.7	40.9
76 05	7.461	14.92	22.38	29.84	37.30	44.77	52.23	59.69	67.15	447.7	895.3	1343.0	1790.6	2238.3
5	.452	.90	.36	.81	.26	.71	.16	.62	7.07	7.1	4.3	41.4	88.5	5.7
7	.443	.89	.33	.77	.22	.66	.10	.55	6.99	6.6	3.2	39.8	6.4	3.0
8	.435	.87	.30	.74	.17	.61	2.04	.48	.91	6.1	2.2	8.2	4.3	30.4
9	.426	.85	.28	.70	.13	.56	1.98	.41	.83	5.6	1.1	6.7	2.2	27.8
76 10	7.417	14.83	22.25	29.67	37.09	44.50	51.92	59.34	66.75	445.0	890.1	1335.1	1780.1	2225.2
11	.408	.82	.22	.63	.04	.45	.86	.27	.67	4.5	89.0	3.5	78.0	22.5
12	.400	.80	.20	.60	7.00	.40	.80	.20	.60	4.0	8.0	1.9	5.9	19.9
13	.391	.78	.17	.56	6.96	.35	.74	.13	.52	3.5	6.9	30.4	3.8	7.3
14	.382	.76	.15	.53	.91	.29	.67	9.06	.44	2.9	5.9	28.8	71.7	4.6
76 15	7.373	14.75	22.12	29.49	36.87	44.24	51.61	58.99	66.36	442.4	884.8	1327.2	1769.6	2212.0
16	.365	.73	.09	.46	.82	.19	.55	.92	.28	1.9	3.8	5.6	7.5	09.4
17	.356	.71	.07	.42	.78	.14	.49	.85	.20	1.4	2.7	4.1	5.4	6.8
18	.347	.69	.04	.39	.74	.08	.43	.78	.12	0.8	1.6	2.5	3.3	4.1
19	.338	.68	2.02	.35	.69	4.03	.37	.71	6.05	40.3	80.6	20.9	61.2	201.5
76 20	7.330	14.66	21.99	29.32	36.65	43.98	51.31	58.64	65.97	439.8	879.5	1319.3	1759.1	2198.9
21	.321	.64	.96	.28	.60	.92	.24	.57	.89	9.2	8.5	7.7	7.0	6.2
22	.312	.62	.94	.25	.56	.87	.18	.50	.81	8.7	7.4	6.2	4.9	3.6
23	.303	.61	.91	.21	.52	.82	.12	.43	.73	8.2	6.4	4.6	2.8	91.0
24	.295	.59	.88	.18	.47	.77	.06	.36	.65	7.7	5.3	3.0	50.7	88.4
76 25	7.286	14.57	21.86	29.14	36.43	43.71	51.00	58.29	65.57	437.1	874.3	1311.4	1748.6	2185.7
26	.277	.55	.83	.11	.39	.66	0.94	.22	.49	6.6	3.2	09.9	6.5	3.1
27	.268	.54	.81	.07	.34	.61	.88	.15	.42	6.1	2.2	8.3	4.4	80.5
28	.259	.52	.78	.04	.30	.56	.81	.08	.34	5.6	1.1	6.7	2.3	77.8
29	.251	.50	.75	9.00	.25	.50	.75	8.01	.26	5.0	70.1	5.1	40.2	5.2
76 30	7.242	14.48	21.73	28.97	36.21	43.45	50.69	57.94	65.18	434.5	869.0	1303.5	1738.1	2172.6
31	.233	.47	.70	.93	.17	.40	.63	.86	.10	4.0	8.0	2.0	5.9	69.9
32	.224	.45	.67	.90	.12	.35	.57	.79	5.02	3.5	6.9	300.4	3.8	7.3
33	.216	.43	.65	.86	.08	.29	.51	.73	4.94	2.9	5.9	298.8	31.7	4.7
34	.207	.41	.62	.83	6.03	.24	.45	.65	.86	2.4	4.8	7.2	29.6	62.0
76 35	7.198	14.40	21.59	28.79	35.99	43.19	50.39	57.58	64.78	431.9	863.8	1295.6	1727.5	2159.4
36	.189	.38	.57	.76	.95	.14	.32	.51	.70	1.4	2.7	4.1	5.4	6.8
37	.180	.36	.54	.72	.90	.08	.26	.44	.62	0.8	1.7	2.5	3.3	4.1
38	.172	.34	.51	.69	.86	3.03	.20	.37	.55	30.3	60.6	90.9	21.2	51.5
39	.163	.33	.49	.65	.81	2.98	.14	.30	.47	29.8	59.6	89.3	19.1	48.9
76 40	7.154	14.31	21.46	28.62	35.77	42.92	50.08	57.23	64.39	429.2	858.5	1287.7	1717.0	2146.2
41	.145	.29	.44	.58	.73	.87	50.02	.16	.31	8.7	7.4	6.2	4.9	3.6
42	.137	.27	.41	.55	.68	.82	49.96	.09	.23	8.2	6.4	4.6	2.8	41.0
43	.128	.26	.38	.51	.64	.77	.89	.02	.15	7.7	5.3	3.0	10.7	38.3
44	.119	.24	.36	.48	.59	.71	.83	6.95	4.07	7.1	4.3	81.4	08.6	5.7
76 45	7.110	14.22	21.33	28.44	35.55	42.66	49.77	56.88	63.99	426.6	853.2	1279.8	1706.5	2133.1
46	.101	.20	.30	.41	.51	.61	.71	.81	.91	6.1	2.2	8.3	4.5	30.4
47	.093	.19	.28	.37	.46	.56	.65	.74	.83	5.6	1.1	6.7	2.2	27.8
48	.084	.17	.25	.34	.42	.50	.59	.67	.76	5.0	50.1	5.1	700.1	5.2
49	.075	.15	.23	.30	.37	.45	.52	.60	.68	4.5	49.0	3.5	698.0	22.5
76 50	7.066	14.13	21.20	28.27	35.33	42.40	49.46	56.53	63.60	424.0	848.0	1271.9	1695.9	2119.9
51	.058	.12	.17	.23	.29	.35	.40	.46	.52	3.5	6.9	70.4	3.8	7.3
52	.049	.10	.15	.20	.24	.29	.34	.39	.44	2.9	5.9	68.8	91.7	4.6
53	.040	.08	.12	.16	.20	.24	.28	.32	.36	2.4	4.8	7.2	89.6	12.0
54	.031	.06	.09	.13	.16	.19	.22	.25	.28	1.9	3.7	5.6	7.5	09.4
76 55	7.022	14.04	21.07	28.09	35.11	42.13	49.16	56.18	63.20	421.3	842.7	1264.0	1685.4	2106.7
56	.014	.03	.04	.05	.07	.08	.09	.11	.12	0.8	1.6	2.5	3.3	4.1
57	.005	4.01	1.02	8.02	5.02	2.03	9.03	6.04	3.05	20.3	40.6	60.9	81.2	101.5
58	6.996	3.99	0.99	7.98	4.98	1.98	8.97	5.97	2.97	19.8	39.5	59.3	79.1	098.8
59	.987	.97	.96	.95	.94	.92	.91	.90	.89	9.2	8.5	7.7	6.9	6.2
76 60	6.978	13.96	20.94	27.91	34.89	41.87	48.85	55.83	62.81	418.7	837.4	1256.1	1674.8	2093.5

Lat.	Latitude 76° to 77°—Meridional arcs.						Latitude 76°—Co-ordinates of curvature		
	Value of 1"	Sums of seconds for middle latitude 76° 30'		Value of 1'	Continuous sums of minutes from latitude 76° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
76 00	31.009			1860.54			0 1	450.3	0.1
1	9	1	31.01	.55	1	1 860.5	0 2	900.6	0.3
2	9	2	62.02	.55	2	3 721.1	3	1 350.8	0.6
3	9	3	93.03	.55	3	5 581.6	4	1 801.1	1.0
4	9	4	124.04	.55	4	7 442.2	0 5	2 251.4	1.6
76 05	31.009	5	155.05	1860.56	5	9 302.7	0 6	2 701.7	2.3
6	9	6	186.06	.56	6	11 163.3	7	3 152.0	3.1
7	9	7	217.07	.56	7	13 023.9	8	3 602.3	4.1
8	9	8	248.08	.56	8	14 884.4	9	4 052.6	5.1
9	9	9	279.09	.57	9	16 745.0			
76 10	31.009	10	310.10	1860.57	10	18 605.6	0 10	4 502.8	6.4
11	10	1	341.11	.57	1	20 466.1	15	6 754.3	14.3
12	10	2	372.12	.57	2	22 326.7	20	9 005.7	25.4
13	0	3	403.13	.58	3	24 187.3	25	11 257.1	39.7
14	0	4	434.14	.58	4	26 047.8	30	13 508.4	57.2
76 15	31.010	15	465.15	1860.58	15	27 908.4	0 35	15 759.7	77.8
16	0	6	496.17	.58	6	29 769.0	40	18 011.0	101.7
17	0	7	527.18	.59	7	31 629.6	45	20 262.3	128.7
18	0	8	558.19	.59	8	33 490.2	50	22 513.5	158.9
19	0	9	589.20	.59	9	35 350.8	55	24 764.7	192.2
76 20	31.010	20	620.21	1860.59	20	37 211.4	1 00	27 015.8	228.8
21	0	1	651.22	.60	1	39 072.0	05	29 266.9	268.5
22	0	2	682.23	.60	2	40 932.6	10	31 517.9	311.4
23	0	3	713.24	.60	3	42 793.2	15	33 768.9	357.4
24	0	4	744.25	.60	4	44 653.8	20	36 019.8	406.7
76 25	31.010	25	775.26	1860.61	25	46 514.4	1 25	38 270.6	459.1
26	0	5	806.27	.61	5	48 375.0	30	40 521.3	514.7
27	0	7	837.28	.61	7	50 235.6	35	42 772.0	573.5
28	0	8	868.29	.61	8	52 096.2	40	45 022.6	635.4
29	0	9	899.30	.62	9	53 956.8	45	47 273.1	700.5
76 30	31.010	30	930.31	1860.62	30	55 817.4	1 50	49 523.5	768.8
31	0	1	961.32	.62	1	57 678.1	55	51 773.8	840.3
32	0	2	992.33	.62	2	59 538.7	2 00	54 024	915
33	0	3	1 023.34	.63	3	61 399.3	3 00	81 017	2 058
34	0	4	1 054.35	.63	4	63 259.9	4 00	107 986	3 659
76 35	31.011	35	1 085.36	1860.63	35	65 120.6	5 00	134 924	5 716
36	1	6	1 116.37	.63	6	66 981.2	6 00	161 824	8 228
37	1	7	1 147.38	.64	7	68 841.8	7 00	188 677	11 196
38	1	8	1 178.39	.64	8	70 702.5	8 00	215 477	14 619
39	1	9	1 209.40	.64	9	72 563.1	9 00	242 214	18 494
76 40	31.011	40	1 240.41	1860.64	40	74 423.8	10 00	268 882	22 822
41	1	1	1 271.42	.65	1	76 284.4	11 00	295 473	27 601
42	1	2	1 302.43	.65	2	78 145.1	12 00	321 979	32 829
43	1	3	1 333.44	.65	3	80 005.7	13 00	348 393	38 505
44	1	4	1 364.45	.65	4	81 866.4	14 00	374 706	44 628
76 45	31.011	45	1 395.46	1860.66	45	83 727.0	15 00	400 913	51 196
46	1	6	1 426.47	.66	6	85 587.7	16 00	427 004	58 207
47	1	7	1 457.48	.66	7	87 448.3	17 00	452 973	65 658
48	1	8	1 488.50	.66	8	89 309.0	18 00	478 812	73 547
49	1	9	1 519.51	.67	9	91 169.7	19 00	504 514	81 874
76 50	31.011	50	1 550.52	1860.67	50	93 030.3	20 00	530 071	90 635
51	1	1	1 581.53	.67	1	94 891.0	21 00	555 476	99 827
52	1	2	1 612.54	.67	2	96 751.7	22 00	580 722	109 448
53	1	3	1 643.55	.68	3	98 612.3	23 00	605 801	119 495
54	1	4	1 674.56	.68	4	100 473.0	24 00	630 706	129 965
76 55	31.011	55	1 705.57	1860.68	55	102 333.7	25 00	655 431	140 856
56	1	6	1 736.58	.68	6	104 194.4	26 00	679 967	152 163
57	1	7	1 767.59	.69	7	106 055.1	27 00	704 309	163 885
58	1	8	1 798.60	.69	8	107 915.8	28 00	728 449	176 017
59	2	9	1 829.61	.69	9	109 776.5	29 00	752 379	188 556
76 60	31.012	60	1 860.62	1860.69	60	111 637.1	30 00	776 094	201 498

Latitude 77° to 78°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
77 00	6.978	13.96	20.94	27.91	34.89	41.87	48.85	55.83	62.81	418.7	837.4	1256.1	1674.8	2093.5
1	.970	.94	.91	.88	.85	.82	.79	.76	.73	8.2	6.4	4.5	2.7	90.9
2	.961	.92	.86	.84	.80	.77	.73	.69	.65	7.7	5.3	3.0	70.6	88.3
3	.952	.90	.88	.81	.76	.71	.66	.62	.57	7.1	4.3	51.4	68.5	5.6
4	.943	.89	.83	.77	.72	.66	.60	.55	.49	6.6	3.2	49.8	6.4	3.0
77 05	6.935	13.87	20.80	27.74	34.67	41.61	48.54	55.48	62.41	416.1	832.1	1248.2	1664.3	2080.4
6	.926	.85	.78	.70	.63	.55	.48	.40	.33	5.5	1.1	6.6	2.2	77.7
7	.917	.83	.75	.67	.58	.50	.42	.34	.25	5.0	30.0	5.0	60.1	5.1
8	.908	.82	.72	.63	.54	.45	.36	.26	.17	4.5	29.0	3.5	58.0	72.4
9	.899	.80	.70	.60	.50	.40	.29	.19	.09	4.0	7.9	1.9	5.8	69.8
77 10	6.891	13.78	20.67	27.56	34.45	41.34	48.23	55.12	62.01	413.4	826.9	1240.3	1653.7	2067.2
11	.882	.76	.64	.53	.41	.29	.17	5.05	1.94	2.9	5.8	38.7	51.6	4.5
12	.873	.75	.62	.49	.36	.24	.11	4.98	.86	2.4	4.8	7.1	49.5	61.9
13	.864	.73	.59	.46	.32	.18	8.05	.91	.78	1.8	3.7	5.5	7.4	59.2
14	.855	.71	.57	.42	.28	.13	7.99	.84	.70	1.3	2.6	4.0	5.3	6.6
77 15	6.847	13.69	20.54	27.39	34.23	41.08	47.93	54.77	61.62	410.8	821.6	1232.4	1643.2	2054.0
16	.838	.68	.51	.35	.19	1.03	.86	.70	.54	10.3	20.5	30.8	41.1	51.3
17	.829	.66	.49	.32	.14	0.97	.80	.63	.46	09.7	19.5	29.2	38.9	48.7
18	.820	.64	.46	.28	.10	.92	.74	.56	.38	9.2	8.4	7.6	6.8	6.0
19	.811	.62	.43	.25	.06	.87	.68	.49	.30	8.7	7.4	6.0	4.7	3.4
77 20	6.803	13.61	20.41	27.21	34.01	40.82	47.62	54.42	61.22	408.2	816.3	1224.5	1632.6	2040.8
21	.794	.59	.38	.17	3.97	.76	.56	.35	.14	7.6	5.2	2.9	30.5	38.1
22	.785	.57	.36	.14	.92	.71	.50	.28	1.06	7.1	4.2	21.3	28.4	5.5
23	.776	.55	.33	.10	.88	.66	.43	.21	0.98	6.6	3.1	19.7	6.3	2.8
24	.767	.53	.30	.07	.84	.60	.37	.14	.91	6.0	2.1	8.1	4.2	30.2
77 25	6.759	13.52	20.28	27.03	33.79	40.55	47.31	54.07	60.83	405.5	811.0	1216.5	1622.1	2027.6
26	.750	.50	.25	7.00	.75	.50	.25	4.00	.75	5.0	10.0	5.0	19.9	4.9
27	.741	.48	.22	6.96	.70	.45	.19	3.93	.67	4.5	08.9	3.4	7.8	22.3
28	.732	.46	.20	.96	.66	.39	.12	.86	.59	3.9	7.9	1.8	5.7	19.6
29	.723	.45	.17	.89	.62	.34	.06	.79	.51	3.4	6.8	10.2	3.6	7.0
77 30	6.715	13.43	20.14	26.86	33.57	40.29	47.00	53.72	60.43	402.9	805.7	1208.6	1611.5	2014.4
31	.706	.41	.12	.82	.53	.23	6.94	.65	.35	2.3	4.7	7.0	09.4	11.7
32	.697	.39	.09	.79	.48	.18	.88	.58	.27	1.8	3.6	5.4	7.3	09.1
33	.688	.38	.06	.75	.44	.13	.82	.50	.19	1.3	2.6	3.9	5.1	6.4
34	.679	.36	.04	.72	.40	.08	.75	.43	.11	0.8	1.5	2.3	3.0	3.8
77 35	6.670	13.34	20.01	26.68	33.35	40.02	46.69	53.36	60.03	400.2	800.5	1200.7	1600.9	2001.1
36	.662	.32	19.98	.65	.31	39.97	.63	.29	59.96	399.7	799.4	199.1	598.8	1998.5
37	.653	.31	.96	.61	.26	.92	.57	.22	.88	9.2	8.3	7.5	6.7	5.9
38	.644	.29	.93	.58	.22	.86	.51	.15	.80	8.6	7.3	5.9	4.6	3.2
39	.635	.27	.91	.54	.18	.81	.45	.08	.72	8.1	6.2	4.3	2.5	90.6
77 40	6.626	13.25	19.88	26.51	33.13	39.76	46.38	53.01	59.64	397.6	795.2	1192.8	1590.3	1987.9
41	.618	.24	.85	.47	.09	.71	.32	2.94	.56	7.1	4.1	91.2	88.2	5.3
42	.609	.22	.83	.43	.04	.65	.26	.87	.48	6.5	3.0	89.6	6.1	2.6
43	.600	.20	.80	.40	3.00	.60	.20	.80	.40	6.0	2.0	8.0	4.0	80.0
44	.591	.18	.77	.36	2.95	.55	.14	.73	.32	5.5	90.9	6.4	81.9	77.3
77 45	6.582	13.16	19.75	26.33	32.91	39.49	46.07	52.66	59.24	394.9	789.9	1184.8	1579.8	1974.7
46	.574	.15	.72	.29	.87	.44	6.01	.59	.16	4.4	8.8	3.2	7.6	72.1
47	.565	.13	.69	.26	.82	.39	5.95	.52	.08	3.9	7.8	1.6	5.5	69.4
48	.556	.11	.66	.22	.78	.34	.89	.45	9.00	3.4	6.7	80.1	3.4	6.8
49	.547	.09	.64	.19	.73	.28	.83	.38	8.92	2.8	5.6	78.5	71.3	4.1
77 50	6.538	13.08	19.61	26.15	32.69	39.23	45.77	52.31	58.84	392.3	784.6	1176.9	1569.2	1961.5
51	.529	.06	.59	.12	.65	.18	.71	.24	.76	1.8	3.5	5.3	7.1	58.8
52	.521	.04	.56	.08	.60	.12	.64	.17	.68	1.2	2.5	3.7	4.9	6.2
53	.512	.02	.53	.05	.56	.07	.58	.09	.60	0.7	1.4	2.1	2.8	3.5
54	.503	3.01	.51	6.01	.51	9.02	.52	2.02	.53	90.2	80.4	70.5	60.7	50.9
77 55	6.494	12.99	19.48	25.98	32.47	38.96	45.46	51.95	58.45	389.6	779.3	1168.9	1558.6	1948.2
56	.485	.97	.46	.94	.43	.91	.40	.88	.37	9.1	8.2	7.4	6.5	5.6
57	.477	.95	.43	.91	.38	.86	.34	.81	.29	8.6	7.2	5.8	4.4	3.0
58	.468	.94	.40	.87	.34	.81	.27	.74	.21	8.1	6.1	4.2	2.2	40.3
59	.459	.92	.38	.84	.29	.75	.21	.67	.13	7.5	5.1	2.6	50.1	37.7
77 60	6.450	12.90	19.35	25.80	32.25	38.70	45.15	51.60	58.05	387.0	774.0	1161.0	1548.0	1935.0

Lat.	Latitude 77° to 78°—Meridional arcs.						Latitude 77°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 77° 30'		Value of 1'	Continuous sums of minutes from latitude 77° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
77 00	31.012			1860.69					
1	2	1	31.01	.70	1	1 860.7	0 1	418.7	0.1
2	2	2	62.03	.70	2	3 721.4	2	837.4	0.2
3	2	3	93.04	.70	3	5 582.1	3	1 256.1	0.5
4	2	4	124.05	.70	4	7 442.8	4	1 674.8	0.9
77 05	31.012	5	155.06	1860.71	5	9 303.5	0 5	2 093.5	1.5
6	2	6	186.08	.71	6	11 164.2	6	2 512.3	2.1
7	2	7	217.09	.71	7	13 024.9	7	2 931.0	2.9
8	2	8	248.10	.71	8	14 885.6	8	3 349.7	3.8
9	2	9	279.11	.71	9	16 746.3	9	3 768.4	4.8
77 10	31.012	10	310.13	1860.72	10	18 607.1	0 10	4 187.1	5.9
11	2	1	341.14	.72	1	20 467.8	15	6 280.6	13.4
12	2	2	372.15	.72	2	22 328.5	20	8 374.1	23.7
13	2	3	403.17	.72	3	24 189.2	25	10 467.6	37.1
14	2	4	434.18	.73	4	26 049.9	30	12 561.1	53.4
77 15	31.012	15	465.19	1860.73	15	27 910.7	0 35	14 654.6	72.7
16	2	6	496.20	.73	6	29 771.4	40	16 748.0	94.9
17	2	7	527.22	.73	7	31 632.1	45	18 841.4	120.2
18	2	8	558.23	.74	8	33 492.9	50	20 934.8	148.3
19	2	9	589.24	.74	9	35 353.6	55	23 028.1	179.5
77 20	31.012	20	620.25	1860.74	20	37 214.3	1 00	25 121.4	213.6
21	2	1	651.27	.74	1	39 075.1	05	27 214.6	250.7
22	2	2	682.28	.75	2	40 935.8	10	29 307.7	290.7
23	2	3	713.29	.75	3	42 796.6	15	31 400.8	333.8
24	3	4	744.31	.75	4	44 657.3	20	33 493.9	379.7
77 25	31.013	25	775.32	1860.75	25	46 518.1	1 25	35 586.9	428.7
26	3	5	806.33	.76	5	48 378.8	30	37 679.8	480.6
27	3	7	837.34	.76	7	50 239.6	35	39 772.6	535.5
28	3	8	868.36	.76	8	52 100.3	40	41 865.3	593.3
29	3	9	899.37	.76	9	53 961.1	45	43 958.0	654.1
77 30	31.013	30	930.38	1860.76	30	55 821.9	1 50	46 050.6	717.9
31	3	1	961.40	.77	1	57 682.6	55	48 143.0	784.7
32	3	2	992.41	.77	2	59 543.4	2 00	50 235	854
33	3	3	1 023.42	.77	3	61 404.2	3 00	75 335	1 922
34	3	4	1 054.43	.77	4	63 265.0	4 00	100 413	3 417
77 35	31.013	35	1 085.45	1860.78	35	65 125.7	5 00	125 462	5 337
36	3	6	1 116.46	.78	6	66 986.5	6 00	150 474	7 684
37	3	7	1 147.47	.78	7	68 847.3	7 00	175 443	10 455
38	3	8	1 178.48	.78	8	70 708.1	8 00	200 361	13 650
39	3	9	1 209.50	.79	9	72 568.9	9 00	225 221	17 269
77 40	31.013	40	1 240.51	1860.79	40	74 429.6	10 00	250 016	21 310
41	3	1	1 271.52	.79	1	76 290.4	11 00	274 739	25 772
42	3	2	1 302.54	.79	2	78 151.2	12 00	299 383	30 654
43	3	3	1 333.55	.79	3	80 012.0	13 00	323 939	35 954
44	3	4	1 364.56	.80	4	81 872.8	14 00	348 403	41 671
77 45	31.013	45	1 395.57	1860.80	45	83 733.6	15 00	372 765	47 804
46	3	5	1 426.59	.80	5	85 594.4	16 00	397 019	54 349
47	3	7	1 457.60	.80	7	87 455.2	17 00	421 159	61 306
48	3	8	1 488.61	.81	8	89 316.0	18 00	445 177	68 673
49	3	9	1 519.62	.81	9	91 176.8	19 00	469 066	76 447
77 50	31.014	50	1 550.64	1860.81	50	93 037.6	20 00	492 820	84 626
51	4	1	1 581.65	.81	1	94 898.5	21 00	516 431	93 208
52	4	2	1 612.66	.82	2	96 759.3	22 00	539 892	102 190
53	4	3	1 643.68	.82	3	98 620.1	23 00	563 198	111 570
54	4	4	1 674.69	.82	4	100 480.9	24 00	586 341	121 345
77 55	31.014	55	1 705.70	1860.82	55	102 341.7	25 00	609 314	131 512
56	4	6	1 736.71	.82	6	104 202.5	26 00	632 111	142 068
57	4	7	1 767.73	.83	7	106 063.4	27 00	654 725	153 010
58	4	8	1 798.74	.83	8	107 924.2	28 00	677 149	164 335
59	4	9	1 829.75	.83	9	109 785.0	29 00	699 378	176 040
77 60	31.014	60	1 860.76	1860.83	60	111 645.9	30 00	721 405	188 121

Latitude 78° to 79°—Arcs of the parallel in meters.

Lat	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
78 00	6.450	12.90	19.35	25.80	32.25	38.70	45.15	51.60	58.05	387.0	774.0	1161.0	1548.0	1935.0
1	.441	.88	.32	.77	.21	.65	.09	.53	7.97	6.5	2.9	59.4	5.9	32.4
2	.432	.86	.30	.73	.16	.59	.03	.46	.89	5.9	1.9	7.8	3.8	29.7
3	.424	.85	.27	.69	.12	.54	.06	.39	.81	5.4	6.2	41.7	7.1	7.1
4	.415	.83	.24	.66	.07	.49	.90	.32	.73	4.9	69.8	4.7	39.5	4.4
78 05	6.406	12.81	19.22	25.62	32.03	38.44	44.84	51.24	57.65	384.4	768.7	1153.1	1537.4	1921.8
6	.397	.79	.19	.59	1.99	.38	.78	.18	.57	3.8	7.6	51.5	5.3	19.1
7	.388	.78	.17	.55	.94	.33	.72	.11	.50	3.3	6.6	49.9	3.2	6.5
8	.379	.76	.14	.52	.90	.28	.65	1.03	.42	2.8	5.5	8.3	31.1	3.8
9	.371	.74	.11	.48	.85	.22	.59	0.96	.34	2.2	4.5	6.7	28.9	11.2
78 10	6.362	12.72	19.09	25.45	31.81	38.17	44.53	50.89	57.26	381.7	763.4	1145.1	1526.8	1908.5
11	.353	.71	.06	.41	.77	.12	.47	.82	.18	1.2	2.4	3.5	4.7	5.9
12	.344	.69	.03	.38	.72	.06	.41	.75	.10	0.6	1.3	1.9	2.6	3.2
13	.335	.67	9.01	.34	.68	8.01	.34	.68	7.02	80.1	60.2	40.4	20.5	900.6
14	.326	.65	8.98	.31	.63	7.96	.28	.61	6.94	79.6	59.2	38.8	18.3	897.9
78 15	6.318	12.64	18.95	25.27	31.59	37.91	44.22	50.54	56.86	379.1	758.1	1137.2	1516.2	1895.3
16	.309	.62	.93	.23	.54	.85	.16	.47	.78	8.5	7.1	5.6	4.1	2.6
17	.300	.60	.90	.20	.50	.80	.10	.40	.70	8.0	6.0	4.0	12.0	90.0
18	.291	.58	.87	.16	.46	.75	4.04	.33	.62	7.5	4.9	2.4	09.9	87.3
19	.282	.56	.85	.13	.41	.69	3.97	.26	.54	6.9	3.9	30.8	7.7	4.7
78 20	6.273	12.55	18.82	25.09	31.37	37.64	43.91	50.19	56.46	376.4	752.8	1129.2	1505.6	1882.0
21	.265	.53	.79	.06	.32	.59	.85	.12	.38	5.9	1.8	7.6	3.5	79.4
22	.256	.51	.77	5.02	.28	.53	.79	50.05	.30	5.3	50.7	6.0	501.4	6.7
23	.247	.49	.74	4.99	.24	.48	.73	49.98	.22	4.8	49.6	4.4	499.3	4.1
24	.238	.48	.71	.95	.19	.43	.67	.90	.14	4.3	8.6	2.9	7.1	71.4
78 25	6.229	12.46	18.69	24.92	31.15	37.38	43.60	49.83	56.06	373.8	747.5	1121.3	1495.0	1868.8
26	.220	.44	.66	.88	.10	.32	.54	.76	5.98	3.2	6.5	19.7	2.9	6.1
27	.212	.42	.64	.85	.06	.27	.48	.69	.91	2.7	5.4	8.1	90.8	3.5
28	.203	.41	.61	.81	1.01	.22	.42	.62	.83	2.2	4.3	6.5	88.7	60.8
29	.194	.39	.58	.78	0.97	.16	.36	.55	.75	1.6	3.3	4.9	6.5	58.2
78 30	6.185	12.37	18.56	24.74	30.93	37.11	43.30	49.48	55.67	371.1	742.2	1113.3	1484.4	1855.5
31	.176	.35	.53	.71	.88	.06	.23	.41	.59	0.6	1.1	1.7	2.3	2.9
32	.167	.33	.50	.67	.84	7.00	.17	.34	.51	70.0	40.1	10.1	80.2	50.2
33	.159	.32	.48	.63	.79	6.95	.11	.27	.43	69.5	39.0	08.5	78.0	47.6
34	.150	.30	.45	.60	.75	.90	3.05	.20	.35	9.0	8.0	6.9	5.9	4.9
78 35	6.141	12.28	18.42	24.56	30.71	36.85	42.99	49.13	55.27	368.5	736.9	1105.4	1473.8	1842.3
36	.132	.26	.40	.53	.66	.79	.93	9.06	.19	7.9	5.8	3.8	71.7	39.6
37	.123	.25	.37	.49	.62	.74	.86	8.98	.11	7.4	4.8	2.2	69.6	6.9
38	.114	.23	.34	.46	.57	.69	.80	.91	5.03	6.9	3.7	100.6	7.4	4.3
39	.105	.21	.32	.42	.53	.63	.74	.84	4.95	6.3	2.7	999.0	5.3	31.6
78 40	6.097	12.19	18.29	24.39	30.48	36.58	42.68	48.77	54.87	365.8	731.6	1097.4	1463.2	1829.0
41	.088	.17	.26	.35	.44	.53	.62	.70	.79	5.3	30.5	5.8	61.1	6.3
42	.079	.16	.24	.32	.39	.47	.56	.63	.71	4.7	29.5	4.2	58.9	3.7
43	.070	.14	.21	.28	.35	.42	.49	.56	.63	4.2	8.4	2.6	6.8	21.0
44	.061	.12	.18	.25	.31	.37	.43	.49	.55	3.7	7.3	91.0	4.7	18.4
78 45	6.052	12.10	18.16	24.21	30.26	36.31	42.37	48.42	54.47	363.1	726.3	1089.4	1452.6	1815.7
46	.044	.09	.13	.17	.22	.26	.31	.35	.39	2.6	5.2	7.8	50.4	3.1
47	.035	.07	.10	.14	.17	.21	.24	.28	.31	2.1	4.2	6.2	48.3	10.4
48	.026	.05	.08	.10	.13	.16	.18	.21	.23	1.6	3.1	4.7	6.2	07.8
49	.017	.03	.05	.07	.08	.10	.12	.14	.15	1.0	2.0	3.1	4.1	5.1
78 50	6.008	12.02	18.02	24.03	30.04	36.05	42.06	48.06	54.07	360.5	721.0	1081.5	1442.0	1802.4
51	5.999	2.00	8.00	4.00	30.00	6.00	2.00	7.99	3.99	60.0	19.9	79.9	39.8	799.8
52	.990	1.98	7.97	3.96	29.95	5.94	1.93	.92	.91	59.4	8.9	8.3	7.7	7.1
53	.982	.96	.94	.93	.91	.89	.87	.85	.83	8.9	7.8	6.7	5.6	4.5
54	.973	.95	.92	.89	.86	.84	.81	.78	.75	8.4	6.7	5.1	3.5	91.8
78 55	5.964	11.93	17.89	23.86	29.82	35.78	41.75	47.71	53.68	357.8	715.7	1073.5	1431.3	1789.2
56	.955	.91	.86	.82	.78	.73	.69	.64	.60	7.3	4.6	1.9	29.2	6.5
57	.940	.89	.84	.78	.73	.68	.62	.57	.52	6.8	3.5	70.3	7.1	3.9
58	.937	.87	.81	.75	.69	.62	.56	.50	.44	6.2	2.5	68.7	5.0	81.2
59	.928	.86	.79	.71	.64	.57	.50	.43	.36	5.7	1.4	7.1	2.8	78.5
78 60	5.920	11.84	17.76	23.68	29.60	35.52	41.44	47.36	53.28	355.2	710.4	1065.5	1420.7	1775.9

Lat.	Latitude 78° to 79°—Meridional arcs.						Latitude 78°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 78° 30'		Value of 1'	Continuous sums of minutes from latitude 78° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
78 00	31.014			1860.83					
1	4	1	31.01	.84	1	1 860.8	0 1	387.0	0.1
2	4	2	62.03	.84	2	3 721.7	0 2	774.0	0.2
3	4	3	93.04	.84	3	5 582.5	0 3	1 161.0	0.5
4	4	4	124.06	.84	4	7 443.4	0 4	1 548.0	0.9
78 05	31.014	5	155.07	1860.84	5	9 304.2	0 5	1 935.0	1.4
6	4	6	186.09	.85	6	11 165.0	0 6	2 322.0	2.0
7	4	7	217.10	.85	7	13 025.9	0 7	2 709.0	2.7
8	4	8	248.12	.85	8	14 886.7	0 8	3 096.0	3.5
9	4	9	279.13	.85	9	16 747.6	0 9	3 483.0	4.5
78 10	31.014	10	310.15	1860.86	10	18 608.4	0 10	3 870.0	5.5
11	4	1	341.16	.86	1	20 469.3	0 15	5 805.0	12.4
12	4	2	372.18	.86	2	22 330.2	0 20	7 740.0	22.2
13	4	3	403.19	.86	3	24 191.0	0 25	9 675.0	34.4
14	4	4	434.21	.86	4	26 051.9	0 30	11 610.0	49.6
78 15	31.014	15	465.22	1860.87	15	27 912.8	0 35	13 544.9	67.4
16	4	6	496.24	.87	6	29 773.6	0 40	15 479.8	88.1
17	5	7	527.25	.87	7	31 634.5	0 45	17 414.7	111.5
18	5	8	558.27	.87	8	33 495.4	0 50	19 349.5	137.6
19	5	9	589.28	.88	9	35 356.2	0 55	21 284.3	166.5
78 20	31.015	20	620.30	1860.88	20	37 217.1	1 00	23 219.1	198.2
21	5	1	651.31	.88	1	39 078.0	1 05	25 153.8	232.6
22	5	2	682.33	.88	2	40 938.9	1 10	27 088.4	269.8
23	5	3	713.34	.88	3	42 799.8	1 15	29 023.0	309.7
24	5	4	744.36	.89	4	44 660.6	1 20	30 957.6	352.4
78 25	31.015	25	775.37	1860.89	25	46 521.5	1 25	32 892.1	397.8
26	5	6	806.39	.89	6	48 382.4	1 30	34 826.5	445.9
27	5	7	837.40	.89	7	50 243.3	1 35	36 760.8	496.9
28	5	8	868.42	.90	8	52 104.2	1 40	38 695.1	550.5
29	5	9	899.43	.90	9	53 965.1	1 45	40 629.3	606.9
78 30	31.015	30	930.45	1860.90	30	55 826.0	1 50	42 563.4	666.1
31	5	1	961.46	.90	1	57 686.9	1 55	44 497.4	728.1
32	5	2	992.48	.90	2	59 547.8	2 00	46 431	793
33	5	3	1 023.49	.91	3	61 408.7	2 05	48 365	858
34	5	4	1 054.51	.91	4	63 269.6	2 10	50 299	923
78 35	31.015	35	1 085.52	1860.91	35	65 130.5	2 15	52 233	998
36	5	6	1 116.54	.91	6	66 991.4	2 20	54 167	1073
37	5	7	1 147.55	.91	7	68 852.4	2 25	56 101	1148
38	5	8	1 178.57	.92	8	70 713.3	2 30	58 035	1223
39	5	9	1 209.58	.92	9	72 574.2	2 35	60 000	1300
78 40	31.015	40	1 240.60	1860.92	40	74 435.1	2 40	62 000	1377
41	5	1	1 271.61	.92	1	76 296.0	2 45	64 000	1454
42	5	2	1 302.63	.93	2	78 157.0	2 50	66 000	1531
43	5	3	1 333.64	.93	3	80 017.9	2 55	68 000	1608
44	5	4	1 364.66	.93	4	81 878.8	3 00	70 000	1685
78 45	31.016	45	1 395.67	1860.93	45	83 739.7	3 05	72 000	1762
46	6	6	1 426.69	.93	6	85 600.7	3 10	74 000	1839
47	6	7	1 457.70	.94	7	87 461.6	3 15	76 000	1916
48	6	8	1 488.72	.94	8	89 322.6	3 20	78 000	1993
49	6	9	1 519.73	.94	9	91 183.5	3 25	80 000	2070
78 50	31.016	50	1 550.75	1860.94	50	93 044.4	3 30	82 000	2147
51	6	1	1 581.76	.94	1	94 905.4	3 35	84 000	2224
52	6	2	1 612.78	.95	2	96 766.3	3 40	86 000	2301
53	6	3	1 643.79	.95	3	98 627.2	3 45	88 000	2378
54	6	4	1 674.81	.95	4	100 488.2	3 50	90 000	2455
78 55	31.016	55	1 705.82	1860.95	55	102 349.1	3 55	92 000	2532
56	6	6	1 736.84	.95	6	104 210.1	4 00	94 000	2609
57	6	7	1 767.85	.96	7	106 071.1	4 05	96 000	2686
58	6	8	1 798.87	.96	8	107 932.0	4 10	98 000	2763
59	6	9	1 829.88	.96	9	109 793.0	4 15	100 000	2840
78 60	31.016	60	1 860.90	1860.96	60	111 653.9	4 20	102 000	2917

Latitude 79° to 80°—Arcs of the parallel in meters

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
79 00	5.920	11.84	17.76	23.68	29.60	35.52	41.44	47.36	53.28	355.2	710.4	1065.5	1420.7	1775.9
1	.911	.82	.73	.64	.55	.46	.38	.29	.20	4.6	9.3	3.9	18.6	3.2
2	.902	.80	.71	.61	.51	.41	.31	.22	.12	4.1	8.2	2.3	6.5	70.6
3	.893	.79	.68	.57	.47	.36	.25	.14	3.04	3.6	7.2	60.7	4.3	67.9
4	.884	.77	.65	.54	.42	.31	.19	.07	2.96	3.1	6.1	59.2	2.2	5.3
79 05	5.875	11.75	17.63	23.50	29.38	35.25	41.13	47.00	52.88	352.5	705.0	1057.6	1410.1	1762.6
6	.866	.73	.60	.47	.33	.20	.06	6.93	.80	2.0	4.0	6.0	08.0	59.9
7	.858	.72	.57	.43	.29	.15	1.00	.86	.72	1.5	2.9	4.4	5.8	7.3
8	.849	.70	.55	.39	.24	.09	0.94	.79	.64	0.9	1.8	2.8	3.7	4.6
9	.840	.68	.52	.36	.20	5.04	.88	.72	.56	50.4	700.8	51.2	401.6	52.0
79 10	5.831	11.66	17.49	23.32	29.16	34.99	40.82	46.65	52.48	349.9	699.7	1049.6	1399.4	1749.3
11	.822	.64	.47	.29	.11	.93	.76	.58	.40	9.3	8.7	8.0	7.3	6.7
12	.813	.63	.44	.25	.07	.88	.69	.51	.32	8.8	7.6	6.4	5.2	4.0
13	.804	.61	.41	.22	9.02	.83	.63	.43	.24	8.3	6.5	4.8	3.1	41.3
14	.796	.59	.39	.18	8.98	.77	.57	.36	.16	7.7	5.5	3.2	90.9	38.7
79 15	5.787	11.57	17.36	23.15	28.93	34.72	40.51	46.29	52.08	347.2	694.4	1041.6	1388.8	1736.0
16	.778	.56	.33	.11	.89	.67	.45	.22	2.00	6.7	3.3	40.0	6.7	3.4
17	.769	.54	.31	.08	.85	.61	.38	.15	1.92	6.1	2.3	38.4	4.6	30.7
18	.760	.52	.28	.04	.80	.56	.32	.08	.84	5.6	1.2	6.8	2.4	28.0
19	.751	.50	.25	3.01	.76	.51	.26	6.01	.76	5.1	90.2	5.2	80.3	5.4
79 20	5.742	11.48	17.23	22.97	28.71	34.45	40.20	45.94	51.68	344.5	689.1	1033.6	1378.2	1722.7
21	.734	.47	.20	.93	.67	.40	.14	.87	.60	4.0	8.0	2.0	6.0	20.1
22	.725	.45	.17	.90	.62	.35	.07	.80	.52	3.5	7.0	30.4	3.9	17.4
23	.716	.43	.15	.86	.58	.29	40.01	.73	.44	2.9	5.9	28.8	71.8	4.7
24	.707	.41	.12	.83	.53	.24	39.95	.66	.36	2.4	4.8	7.2	69.7	12.1
79 25	5.698	11.40	17.09	22.79	28.49	34.19	39.89	45.58	51.28	341.9	683.8	1025.6	1367.5	1709.4
26	.680	.38	.07	.76	.45	.14	.83	.51	.20	1.4	2.7	4.1	5.4	6.8
27	.680	.36	.04	.72	.40	.08	.76	.44	.12	0.8	1.6	2.5	3.3	4.1
28	.671	.34	7.01	.69	.36	4.03	.70	.37	1.04	40.3	80.6	20.9	61.1	701.4
29	.663	.33	6.99	.65	.31	3.98	.64	.30	0.96	39.8	79.5	19.3	59.0	698.8
79 30	5.654	11.31	16.96	22.61	28.27	33.92	39.58	45.23	50.88	339.2	678.4	1017.7	1356.9	1696.1
31	.645	.29	.93	.58	.22	.87	.51	.16	.80	8.7	7.4	6.1	4.8	3.4
32	.636	.27	.91	.54	.18	.82	.45	.09	.72	8.2	6.3	4.5	2.6	90.8
33	.627	.25	.88	.51	.14	.76	.39	5.02	.64	7.6	5.2	2.9	50.5	88.1
34	.618	.24	.85	.47	.09	.71	.33	4.94	.56	7.1	4.2	11.3	48.4	5.4
79 35	5.609	11.22	16.83	22.44	28.05	33.66	39.27	44.87	50.48	336.6	673.1	1009.7	1346.2	1682.8
36	.600	.20	.80	.40	8.00	.60	.20	.80	.40	6.0	2.1	8.1	4.1	80.1
37	.592	.18	.78	.37	7.96	.55	.14	.73	.33	5.5	71.0	6.5	42.0	77.5
38	.583	.17	.75	.33	.91	.50	.08	.66	.24	5.0	69.9	4.9	39.9	4.8
39	.574	.15	.72	.30	.87	.44	9.02	.59	.17	4.4	8.9	3.3	7.7	72.2
79 40	5.565	11.13	16.70	22.26	27.83	33.39	38.96	44.52	50.09	333.9	667.8	1001.7	1335.6	1669.5
41	.556	.11	.67	.22	.78	.34	.89	.45	50.00	3.4	6.7	1000.1	3.5	6.8
42	.547	.09	.64	.19	.74	.28	.83	.38	49.93	2.8	5.7	998.5	31.3	4.2
43	.538	.08	.62	.15	.69	.23	.77	.31	.85	2.3	4.6	6.9	29.2	61.5
44	.529	.06	.59	.12	.65	.18	.71	.23	.76	1.8	3.5	5.3	7.1	58.8
79 45	5.521	11.04	16.56	22.08	27.60	33.12	38.64	44.16	49.69	331.2	662.5	993.7	1324.9	1656.2
46	.512	.02	.54	.04	.56	.07	.58	.09	.61	0.7	1.4	2.1	2.8	3.5
47	.503	1.00	.51	2.01	.51	3.02	.52	4.02	.52	30.2	60.3	90.5	20.7	50.8
48	.494	0.99	.48	1.98	.47	2.96	.46	3.95	.45	29.6	59.3	88.9	18.5	48.2
49	.485	.97	.46	.94	.43	.91	.39	.88	.37	9.1	8.2	7.3	6.4	5.5
79 50	5.476	10.95	16.43	21.91	27.38	32.86	38.33	43.81	49.29	328.6	657.2	985.7	1314.3	1642.9
51	.467	.93	.40	.87	.34	.80	.27	.74	.21	8.0	6.1	4.1	2.2	40.2
52	.458	.92	.38	.83	.29	.75	.21	.67	.13	7.5	5.0	2.5	10.0	37.5
53	.450	.90	.35	.80	.25	.70	.14	.60	9.05	7.0	3.9	80.9	07.9	4.9
54	.441	.88	.32	.76	.20	.64	.08	.53	8.97	6.4	2.9	79.3	5.8	32.2
79 55	5.432	10.86	16.30	21.73	27.16	32.59	38.02	43.45	48.89	325.9	651.8	977.4	1303.6	1629.5
56	.423	.85	.27	.69	.12	.54	7.96	.38	.81	5.4	50.7	6.1	301.5	6.9
57	.414	.83	.24	.66	.07	.48	.90	.31	.73	4.8	49.7	4.5	299.4	4.2
58	.405	.81	.21	.62	7.03	.43	.83	.24	.65	4.3	8.6	2.9	7.2	21.5
59	.396	.79	.19	.58	6.98	.38	.77	.17	.56	3.8	7.5	71.3	5.1	18.8
79 60	5.387	10.77	16.16	21.55	26.94	32.32	37.71	43.10	48.49	323.2	646.5	969.7	1293.0	1616.2

Lat.	Latitude 79° to 80°—Meridional arcs.						Latitude 79°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 79° 30'		Value of 1'	Continuous sums of minutes from latitude 79° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
79 00	31.016			1860.96					
1	6	1	31.02	.97	1	1 861.0	0 1	355.2	0.1
2	6	2	62.03	.97	2	3 721.9	2	710.3	0.2
3	6	3	93.05	.97	3	5 582.9	3	1 065.5	0.5
4	6	4	124.07	.97	4	7 443.9	4	1 420.7	0.8
79 05	31.016	5	155.09	1860.97	5	9 304.8	0 5	1 775.9	1.3
6	6	6	186.10	.98	6	11 165.8	6	2 131.1	1.8
7	6	7	217.12	.98	7	13 026.8	7	2 486.2	2.5
8	6	8	248.14	.98	8	14 887.8	8	2 841.4	3.2
9	6	9	279.15	.98	9	16 748.8	9	3 196.6	4.1
79 10	31.016	10	310.17	1860.98	10	18 609.7	0 10	3 551.8	5.1
11	6	1	341.19	.99	1	20 470.7	15	5 327.6	11.4
12	6	2	372.20	.99	2	22 331.7	20	7 103.5	20.3
13	6	3	403.22	.99	3	24 192.7	25	8 879.3	31.7
14	7	4	434.24	.99	4	26 053.7	30	10 655.2	45.6
79 15	31.017	15	465.26	1860.99	15	27 914.7	0 35	12 431.0	62.1
16	7	6	496.27	1.00	6	29 775.7	40	14 206.8	81.1
17	7	7	527.29	.00	7	31 636.7	45	15 982.5	102.7
18	7	8	558.31	.00	8	33 497.7	50	17 758.2	126.8
19	7	9	589.32	.00	9	35 358.7	55	19 533.9	153.4
79 20	31.017	20	620.34	1861.00	20	37 219.7	1 00	21 309.6	182.5
21	7	1	651.36	.01	1	39 080.7	05	23 085.2	214.2
22	7	2	682.38	.01	2	40 941.7	10	24 860.7	248.5
23	7	3	713.39	.01	3	42 802.7	15	26 636.2	285.2
24	7	4	744.41	.01	4	44 663.7	20	28 411.7	324.5
79 25	31.017	25	775.43	1861.01	25	46 524.7	1 25	30 187.1	366.4
26	7	5	806.44	.02	5	48 385.8	30	31 962.4	410.7
27	7	6	837.46	.02	6	50 246.8	35	33 737.6	457.6
28	7	7	868.48	.02	7	52 107.8	40	35 512.8	507.0
29	7	8	899.49	.02	8	53 968.8	45	37 288.0	559.0
79 30	31.017	30	930.51	1861.02	30	55 829.8	1 50	39 063.0	613.5
31	7	1	961.53	.03	1	57 690.9	55	40 838.0	670.6
32	7	2	992.55	.03	2	59 551.9	2 00	42 613	730
33	7	3	1 023.56	.03	3	61 412.9	3 00	63 904	1 643
34	7	4	1 054.58	.03	4	63 274.0	4 00	85 176	2 920
79 35	31.017	35	1 085.60	1861.03	35	65 135.0	5 00	106 423	4 561
36	7	5	1 116.61	.04	5	66 996.0	6 00	127 639	6 566
37	7	6	1 147.63	.04	6	68 857.1	7 00	148 817	8 934
38	7	7	1 178.65	.04	7	70 718.1	8 00	169 952	11 665
39	7	8	1 209.67	.04	8	72 579.2	9 00	191 036	14 758
79 40	31.017	40	1 240.68	1861.04	40	74 440.2	10 00	212 065	18 211
41	7	1	1 271.70	.05	1	76 301.2	11 00	233 031	22 024
42	7	2	1 302.72	.05	2	78 162.3	12 00	253 929	26 195
43	7	3	1 333.73	.05	3	80 023.3	13 00	274 753	30 724
44	8	4	1 364.75	.05	4	81 884.4	14 00	295 496	35 609
79 45	31.018	45	1 395.77	1861.05	45	83 745.4	15 00	316 152	40 849
46	8	5	1 426.79	.06	5	85 606.5	16 00	336 715	46 442
47	8	6	1 457.80	.06	6	87 467.6	17 00	357 180	52 386
48	8	7	1 488.82	.06	7	89 328.6	18 00	377 540	58 680
49	8	8	1 519.84	.06	8	91 189.7	19 00	397 788	65 322
79 50	31.018	50	1 550.85	1861.06	50	93 050.7	20 00	417 920	72 310
51	8	1	1 581.87	.06	1	94 911.8	21 00	437 930	79 641
52	8	2	1 612.89	.07	2	96 772.9	22 00	457 811	87 315
53	8	3	1 643.90	.07	3	98 633.9	23 00	477 557	95 328
54	8	4	1 674.92	.07	4	100 495.0	24 00	497 164	103 678
79 55	31.018	55	1 705.94	1861.07	55	102 356.1	25 00	516 624	112 362
56	8	5	1 736.96	.07	5	104 217.1	26 00	535 933	121 379
57	8	6	1 767.97	.08	6	106 078.2	27 00	555 084	130 725
58	8	7	1 798.99	.08	7	107 939.3	28 00	574 073	140 398
59	8	8	1 830.01	.08	8	109 800.4	29 00	592 893	150 395
79 60	31.018	60	1 861.02	1861.08	60	111 661.4	30 00	611 539	160 713

Latitude 80° to 81°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
80 00	5.387	10.77	16.16	21.55	26.94	32.32	37.71	43.10	48.49	323.2	646.5	969.7	1293.0	1616.2
1	.378	.76	.13	.51	.89	.27	.65	3.03	.41	2.7	5.4	8.1	90.8	3.5
2	.370	.74	.11	.48	.85	.22	.59	2.96	.33	2.2	4.3	6.5	88.7	10.9
3	.361	.72	.08	.44	.80	.16	.52	.89	.25	1.6	3.3	4.9	6.6	08.2
4	.352	.70	.06	.41	.76	.11	.46	.81	.17	1.1	2.2	3.3	4.4	5.5
80 05	5.343	10.69	16.03	21.37	26.72	32.06	37.40	42.74	48.09	320.6	641.1	961.7	1282.3	1602.9
6	.334	.67	6.00	.34	.67	2.00	.34	.67	8.01	20.0	40.1	60.1	80.2	600.2
7	.325	.65	5.98	.30	.63	1.95	.28	.60	7.93	19.5	39.0	58.5	78.0	597.5
8	.316	.63	.95	.27	.59	.90	.21	.53	.85	9.0	7.9	6.9	5.9	4.9
9	.307	.61	.92	.23	.54	.84	.15	.46	.77	8.4	6.9	5.3	3.8	92.2
80 10	5.298	10.60	15.90	21.19	26.49	31.79	37.09	42.39	47.69	317.9	635.8	953.7	1271.6	1589.5
11	.290	.58	.87	.16	.45	.74	7.03	.32	.61	7.4	4.7	2.1	69.5	6.9
12	.281	.56	.84	.12	.40	.68	6.97	.25	.53	6.8	3.7	50.5	7.4	4.2
13	.272	.54	.82	.09	.36	.63	.90	.17	.45	6.3	2.6	48.9	5.2	81.5
14	.263	.53	.79	.05	.31	.58	.84	.10	.37	5.8	1.6	7.3	3.1	78.9
80 15	5.254	10.51	15.76	21.02	26.27	31.52	36.78	42.03	47.29	315.2	630.5	945.7	1261.0	1576.2
16	.245	.49	.74	0.98	.23	.47	.72	1.96	.21	4.7	29.4	4.1	58.8	3.5
17	.236	.47	.71	.95	.18	.42	.65	.89	.13	4.2	8.3	2.5	6.7	70.9
18	.227	.45	.68	.91	.14	.36	.59	.82	7.05	3.6	7.3	40.9	4.6	68.2
19	.218	.44	.66	.87	.09	.31	.53	.75	6.97	3.1	6.2	39.3	2.4	5.5
80 20	5.210	10.42	15.63	20.84	26.05	31.26	36.47	41.68	46.89	312.6	625.1	937.7	1250.3	1562.9
21	.201	.40	.60	.80	6.00	.20	.40	.61	.81	2.0	4.1	6.1	48.2	60.2
22	.192	.38	.58	.77	5.96	.15	.34	.54	.73	1.5	3.0	4.5	6.0	57.5
23	.183	.37	.55	.73	.92	.10	.28	.46	.65	1.0	1.9	2.9	3.9	4.9
24	.174	.35	.52	.70	.87	1.04	.22	.39	.57	10.4	20.9	31.3	41.7	52.2
80 25	5.165	10.33	15.49	20.66	25.83	30.99	36.15	41.32	46.49	309.9	619.8	929.7	1239.6	1549.5
26	.156	.31	.47	.62	.78	.94	.09	.25	.40	9.4	8.7	8.1	7.5	6.8
27	.147	.29	.44	.59	.74	.88	6.03	.18	.33	8.8	7.7	6.5	5.3	4.2
28	.138	.28	.41	.55	.69	.83	5.97	.11	.25	8.3	6.6	4.9	3.2	41.5
29	.129	.26	.39	.52	.65	.78	.90	1.03	.16	7.8	5.5	3.3	31.1	38.8
80 30	5.121	10.24	15.36	20.48	25.60	30.72	35.85	40.97	46.09	307.2	614.5	921.7	1228.9	1536.2
31	.112	.22	.33	.45	.56	.67	.78	.89	6.01	6.7	3.4	20.1	6.8	3.5
32	.103	.21	.31	.41	.51	.62	.72	.82	5.92	6.2	3.2	18.5	4.7	30.8
33	.094	.19	.28	.38	.47	.56	.66	.75	.85	5.6	1.3	6.9	2.5	28.2
34	.085	.17	.25	.34	.42	.51	.59	.68	.77	5.1	10.2	5.3	20.4	5.5
80 35	5.076	10.15	15.23	20.30	25.38	30.46	35.53	40.61	45.68	304.6	609.1	913.7	1218.3	1522.8
36	.067	.13	.20	.27	.34	.40	.47	.54	.60	4.0	8.1	2.1	6.1	20.1
37	.058	.12	.17	.23	.29	.35	.41	.47	.52	3.5	7.0	10.5	4.0	17.5
38	.049	.10	.15	.20	.25	.30	.35	.39	.44	3.0	5.9	08.9	11.8	4.8
39	.040	.08	.12	.16	.20	.24	.28	.32	.36	2.4	4.9	7.3	09.7	12.1
80 40	5.032	10.06	15.09	20.13	25.16	30.19	35.22	40.25	45.28	301.9	603.8	905.7	1207.6	1509.5
41	.023	.05	.07	.09	.11	.14	.16	.18	.20	1.4	2.7	4.1	5.4	6.8
42	.014	.03	.04	.05	.07	.08	.10	.11	.12	0.8	1.6	2.5	3.3	4.1
43	5.005	10.01	5.01	20.02	5.02	30.03	5.03	40.04	5.04	300.3	600.6	900.9	201.2	501.4
44	4.996	9.99	4.99	19.98	4.98	29.98	4.97	39.97	4.96	299.8	599.5	899.3	199.0	498.8
80 45	4.987	9.97	14.96	19.95	24.94	29.92	34.91	39.90	44.88	299.2	598.4	897.7	1196.9	1496.1
46	.978	.96	.93	.91	.89	.87	.85	.82	.80	8.7	7.4	6.1	4.7	3.4
47	.969	.94	.91	.88	.85	.82	.79	.75	.72	8.2	6.3	4.5	2.6	90.8
48	.960	.92	.88	.84	.80	.76	.72	.68	.64	7.6	5.2	2.9	90.5	88.1
49	.951	.90	.85	.81	.76	.71	.66	.61	.56	7.1	4.2	91.3	88.3	5.4
80 50	4.943	9.89	14.83	19.77	24.71	29.66	34.60	39.54	44.48	296.6	593.1	889.7	1186.2	1482.8
51	.934	.87	.80	.73	.67	.60	.54	.47	.40	6.0	2.0	8.0	4.1	80.1
52	.925	.85	.77	.70	.62	.55	.47	.40	.32	5.5	91.0	6.4	81.9	77.4
53	.916	.83	.75	.66	.58	.49	.41	.33	.24	4.9	89.9	4.8	79.8	4.7
54	.907	.81	.72	.63	.53	.44	.35	.26	.16	4.4	8.8	3.2	7.6	72.1
80 55	4.898	9.80	14.69	19.59	24.49	29.39	34.29	39.18	44.08	293.9	587.8	881.6	1175.5	1469.4
56	.889	.78	.67	.56	.45	.33	.22	.11	4.00	3.3	6.7	80.0	3.4	6.7
57	.880	.76	.64	.52	.40	.28	.16	9.04	3.92	2.8	5.6	78.4	71.2	4.0
58	.871	.74	.61	.48	.36	.23	.10	8.97	.84	2.3	4.5	6.8	69.1	61.4
59	.862	.72	.59	.45	.31	.17	4.04	.90	.76	1.7	3.5	5.2	6.9	58.7
80 60	4.853	9.71	14.56	19.41	24.27	29.12	33.97	38.83	43.68	291.2	582.4	873.6	1164.8	1456.0

Lat.	Latitude 80° to 81°—Meridional arcs.						Latitude 80°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 80° 30'		Value of 1'	Continuous sums of minutes from latitude 80° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
80 00	31.018			1861.08			0 1	323.2	0.0
1	8	1	31.02	.08	1	1 861.1	0 1	646.5	0.2
2	8	2	62.04	.09	2	3 722.2	0 2	969.7	0.4
3	8	3	93.06	.09	3	5 583.3	0 3	1 292.9	0.7
4	8	4	124.08	.09	4	7 444.3	0 4	1 616.2	1.2
80 05	31.018	5	155.09	1861.09	5	9 305.4	0 5	1 939.4	1.7
6	8	6	186.11	.09	6	11 166.5	0 6	2 262.7	2.3
7	8	7	217.13	.10	7	13 027.6	0 7	2 585.9	3.0
8	8	8	248.15	.10	8	14 888.7	0 8	2 909.1	3.7
9	8	9	279.17	.10	9	16 749.8	0 9		
80 10	31.018	10	310.19	1861.10	10	18 610.9	0 10	3 232.4	4.6
11	8	11	341.21	.10	11	20 472.0	0 11	4 848.6	10.4
12	8	12	372.23	.10	12	22 333.1	0 12	6 464.8	18.5
13	8	13	403.25	.11	13	24 194.2	0 13	8 080.9	28.9
14	8	14	434.27	.11	14	26 055.3	0 14	9 697.1	41.7
80 15	31.019	15	465.28	1861.11	15	27 916.4	0 15	11 313.2	56.7
16	9	16	496.30	.11	16	29 777.5	0 16	12 929.3	74.1
17	9	17	527.32	.11	17	31 638.7	0 17	14 545.4	93.8
18	9	18	558.34	.12	18	33 499.8	0 18	16 161.4	115.7
19	9	19	589.36	.12	19	35 360.9	0 19	17 777.5	140.1
80 20	31.019	20	620.38	1861.12	20	37 222.0	0 20	19 393.4	166.7
21	9	21	651.40	.12	21	39 083.1	0 21	21 009.4	195.6
22	9	22	682.42	.12	22	40 944.2	0 22	22 625.3	226.9
23	9	23	713.44	.12	23	42 805.4	0 23	24 241.1	260.4
24	9	24	744.45	.13	24	44 666.5	0 24	25 856.9	296.3
80 25	31.019	25	775.47	1861.13	25	46 527.6	0 25	27 472.7	334.5
26	9	26	806.49	.13	26	48 388.7	0 26	29 088.4	375.0
27	9	27	837.51	.13	27	50 249.9	0 27	30 704.0	417.8
28	9	28	868.53	.13	28	52 111.0	0 28	32 319.6	462.9
29	9	29	899.55	.14	29	53 972.1	0 29	33 935.1	510.3
80 30	31.019	30	930.57	1861.14	30	55 833.3	0 30	35 550.5	560.1
31	9	31	961.59	.14	31	57 694.4	0 31	37 165.9	612.2
32	9	32	992.61	.14	32	59 555.6	0 32	38 781.1	667
33	9	33	1 023.63	.14	33	61 416.7	0 33	40 396.2	722.1
34	9	34	1 054.64	.14	34	63 277.8	0 34	42 011.3	777.0
80 35	31.019	35	1 085.66	1861.15	35	65 139.0	0 35	43 626.4	831.9
36	9	36	1 116.68	.15	36	67 000.1	0 36	45 241.5	886.8
37	9	37	1 147.70	.15	37	68 861.3	0 37	46 856.6	941.7
38	9	38	1 178.72	.15	38	70 722.4	0 38	48 471.7	996.6
39	9	39	1 209.74	.15	39	72 583.6	0 39	50 086.8	1051.5
80 40	31.019	40	1 240.76	1861.16	40	74 444.7	0 40	51 701.9	1106.4
41	9	41	1 271.78	.16	41	76 305.9	0 41	53 317.0	1161.3
42	9	42	1 302.80	.16	42	78 167.1	0 42	54 932.1	1216.2
43	9	43	1 333.82	.16	43	80 028.2	0 43	56 547.2	1271.1
44	9	44	1 364.83	.16	44	81 889.4	0 44	58 162.3	1326.0
80 45	31.019	45	1 395.85	1861.16	45	83 750.5	0 45	59 777.4	1380.9
46	9	46	1 426.87	.17	46	85 611.7	0 46	61 392.5	1435.8
47	9	47	1 457.89	.17	47	87 472.9	0 47	63 007.6	1490.7
48	19	48	1 488.91	.17	48	89 334.0	0 48	64 622.7	1545.6
49	20	49	1 519.93	.17	49	91 195.2	0 49	66 237.8	1600.5
80 50	31.020	50	1 550.95	1861.17	50	93 056.4	0 50	67 852.9	1655.4
51	0	51	1 581.97	.17	51	94 917.6	0 51	69 467.9	1710.3
52	0	52	1 612.99	.18	52	96 778.7	0 52	71 083.0	1765.2
53	0	53	1 644.00	.18	53	98 639.9	0 53	72 698.1	1820.1
54	0	54	1 675.02	.18	54	100 501.1	0 54	74 313.2	1875.0
80 55	31.020	55	1 706.04	1861.18	55	102 362.3	0 55	75 928.3	1929.9
56	0	56	1 737.06	.18	56	104 223.5	0 56	77 543.4	1984.8
57	0	57	1 768.08	.19	57	106 084.6	0 57	79 158.5	2039.7
58	0	58	1 799.10	.19	58	107 945.8	0 58	80 773.6	2094.6
59	0	59	1 830.12	.19	59	109 807.0	0 59	82 388.7	2149.5
80 60	31.020	60	1 861.14	1861.19	60	111 668.2	0 60	84 003.8	2204.4

Latitude 81° to 82°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
81 00	4.853	9.71	14.56	19.41	24.27	29.12	33.97	38.83	43.68	291.2	582.4	873.6	1164.8	1456.0
1	.844	.69	.53	.38	.22	.07	.91	.75	.60	0.7	1.3	2.0	2.7	3.3
2	.836	.67	.51	.34	.18	.01	.85	.69	.52	90.1	80.3	70.4	60.5	50.7
3	.827	.65	.48	.31	.13	.8.96	.79	.61	.44	89.6	79.2	68.8	58.4	48.0
4	.818	.64	.45	.27	.09	.91	.72	.54	.36	9.1	8.1	7.2	6.3	5.3
81 05	4.809	9.62	14.43	19.23	24.04	28.85	33.66	38.47	43.28	288.5	577.1	865.6	1154.1	1442.6
6	.800	.60	.40	.20	4.00	.80	.60	.40	.20	8.0	6.0	4.0	52.0	40.0
7	.791	.58	.37	.16	3.96	.75	.54	.33	.12	7.5	4.9	2.4	49.8	37.3
8	.782	.56	.35	.13	.91	.69	.47	.26	3.04	6.9	3.8	60.8	7.7	4.6
9	.773	.55	.32	.09	.87	.64	.41	.18	2.96	6.4	2.8	59.2	5.6	31.9
81 10	4.764	9.53	14.29	19.06	23.82	28.59	33.35	38.11	42.88	285.9	571.7	857.6	1143.4	1429.3
11	.755	.51	.27	9.02	.78	.53	.29	8.04	.80	5.3	70.6	6.0	41.3	6.6
12	.746	.49	.24	8.99	.73	.48	.22	7.97	.72	4.8	69.6	4.4	39.1	3.9
13	.737	.47	.21	.95	.69	.42	.16	.90	.64	4.2	8.5	2.7	7.0	21.2
14	.729	.46	.19	.91	.64	.37	.10	.83	.56	3.7	7.4	51.1	4.9	18.6
81 15	4.720	9.44	14.16	18.88	23.60	28.32	33.04	37.76	42.48	283.2	566.4	849.5	1132.7	1415.9
16	.711	.42	.13	.84	.55	.26	2.98	.69	.40	2.6	5.3	7.9	30.6	3.2
17	.702	.40	.11	.81	.51	.21	.91	.61	.32	2.1	4.2	6.3	28.4	10.5
18	.693	.39	.08	.77	.47	.16	.85	.54	.23	1.6	3.1	4.7	6.3	07.9
19	.684	.37	.05	.74	.42	.10	.79	.47	.16	1.0	2.1	3.1	4.2	5.2
81 20	4.675	9.35	14.03	18.70	23.38	28.05	32.73	37.40	42.08	280.5	561.0	841.5	1122.0	1402.5
21	.666	.33	4.00	.66	.33	8.00	.66	.33	1.99	80.0	59.9	39.9	19.9	399.8
22	.657	.31	3.97	.63	.29	7.94	.60	.26	.92	79.4	8.9	8.3	7.7	7.2
23	.648	.30	.95	.59	.24	.89	.54	.19	.84	8.9	7.8	6.7	5.6	4.5
24	.639	.28	.92	.56	.20	.84	.48	.11	.75	8.4	6.7	5.1	3.5	91.8
81 25	4.630	9.26	13.89	18.52	23.15	27.78	32.41	37.04	41.67	277.8	555.7	833.5	1111.3	1389.1
26	.622	.24	.87	.48	.11	.73	.35	6.97	.59	7.3	4.6	1.9	09.2	6.5
27	.613	.22	.84	.45	.06	.68	.29	.90	.51	6.8	3.5	30.3	7.0	3.8
28	.604	.21	.81	.41	3.02	.62	.23	.83	.43	6.2	2.4	28.7	4.9	81.1
29	.595	.19	.78	.38	2.97	.57	.16	.76	.35	5.7	1.4	7.1	2.7	78.4
81 30	4.586	9.17	13.76	18.34	22.93	27.51	32.10	36.69	41.27	275.1	550.3	825.4	1100.6	1375.7
31	.577	.15	.73	.31	.89	.46	2.04	.62	.19	4.6	49.2	3.8	098.5	3.1
32	.568	.14	.70	.27	.84	.41	1.98	.54	.11	4.1	8.2	2.2	6.3	70.4
33	.559	.12	.68	.24	.80	.35	.91	.47	1.03	3.5	7.1	20.6	4.2	67.7
34	.550	.10	.65	.20	.75	.30	.85	.40	0.95	3.0	6.0	19.0	92.0	5.0
81 35	4.541	9.08	13.62	18.17	22.71	27.25	31.79	36.33	40.87	272.5	544.9	817.4	1089.9	1362.4
36	.532	.06	.60	.13	.66	.19	.73	.26	.79	1.9	3.9	5.8	7.7	59.7
37	.523	.05	.57	.09	.62	.14	.66	.19	.71	1.4	2.8	4.2	5.6	7.0
38	.514	.03	.54	.06	.57	.09	.60	.11	.63	0.9	1.7	2.6	3.5	4.3
39	.506	9.01	.52	8.02	.53	7.03	.54	6.05	.55	70.3	40.7	11.0	81.3	51.7
81 40	4.497	8.99	13.49	17.99	22.48	26.98	31.48	35.97	40.47	269.8	539.6	809.4	1079.2	1349.0
41	.488	.98	.46	.95	.44	.93	.41	.90	.39	9.3	8.5	7.8	7.0	6.3
42	.479	.96	.44	.91	.39	.87	.35	.83	.31	8.7	7.4	6.2	4.9	3.6
43	.470	.94	.41	.88	.35	.82	.29	.76	.23	8.2	6.4	4.6	2.7	40.9
44	.461	.92	.38	.84	.30	.77	.23	.69	.15	7.7	5.3	3.0	70.6	38.3
81 45	4.452	8.90	13.36	17.81	22.26	26.71	31.16	35.62	40.07	267.1	534.2	801.3	1068.5	1335.6
46	.443	.89	.33	.77	.22	.66	.10	.54	39.99	6.6	3.2	799.7	6.3	2.9
47	.434	.87	.30	.74	.17	.60	1.04	.47	.91	6.0	2.1	8.1	4.2	30.2
48	.425	.85	.27	.70	.13	.55	0.98	.40	.83	5.5	31.0	6.5	62.0	27.5
49	.416	.83	.25	.67	.08	.50	.91	.33	.75	5.0	30.0	4.9	59.9	4.9
81 50	4.407	8.81	13.22	17.63	22.04	26.44	30.85	35.26	39.67	264.4	528.9	793.3	1057.7	1322.2
51	.398	.80	.19	.59	1.99	.39	.79	.19	.59	3.9	7.8	1.7	5.6	19.5
52	.389	.78	.17	.56	.95	.34	.73	.11	.50	3.4	6.7	90.1	3.5	6.8
53	.380	.76	.14	.52	.90	.28	.66	.5.04	.42	2.8	5.7	88.5	51.3	4.1
54	.372	.74	.11	.49	.86	.23	.60	4.97	.35	2.3	4.6	6.9	49.2	11.5
81 55	4.363	8.73	13.09	17.45	21.81	26.18	30.54	34.90	39.26	261.8	523.5	785.3	1047.0	1308.8
56	.354	.71	.06	.41	.77	.12	.48	.83	.18	1.2	2.4	3.7	4.9	6.1
57	.345	.69	.03	.38	.72	.07	.41	.76	.10	0.7	1.4	2.0	2.7	3.4
58	.336	.67	3.01	.34	.68	6.02	.35	.69	9.02	60.2	20.3	80.4	40.6	300.7
59	.327	.65	2.98	.31	.64	5.96	.29	.62	8.94	59.6	19.2	78.8	38.4	298.1
81 60	4.318	8.64	12.95	17.27	21.59	25.91	30.23	34.54	38.86	259.1	518.2	777.2	1036.3	1295.4

Lat.	Latitude 81° to 82°—Meridional arcs.						Latitude 81°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 81° 30'		Value of 1'	Continuous sums of minutes from latitude 81° 00'		Longitude.	X	Y
	Meters.	''	Meters.	Meters.	'	Meters.	° '	Meters.	Meters.
81 00	31.020			1861.19			0 1	291.2	0.0
1	0	1	31.02	.19	1	1 861.2	0 2	582.4	0.2
2	0	2	62.04	.19	2	3 722.4	0 3	873.6	0.4
3	0	3	93.06	.20	3	5 583.6	0 4	1 164.8	0.7
4	0	4	124.08	.20	4	7 444.8	0 5	1 456.0	1.0
81 05	31.020	5	155.10	1861.20	5	9 306.0	0 6	1 747.2	1.5
6	0	6	186.12	.20	6	11 167.2	0 7	2 038.4	2.0
7	0	7	217.14	.20	7	13 028.4	0 8	2 329.6	2.7
8	0	8	248.17	.20	8	14 889.6	0 9	2 620.8	3.4
9	0	9	279.19	.21	9	16 750.8			
81 10	31.020	10	310.21	1861.21	10	18 612.0	0 10	2 912.0	4.2
11	0	1	341.23	.21	1	20 473.2	0 15	4 368.0	9.4
12	0	2	372.25	.21	2	22 334.4	0 20	5 824.0	16.7
13	0	3	403.27	.21	3	24 195.6	0 25	7 280.0	26.1
14	0	4	434.29	.21	4	26 056.8	0 30	8 736.0	37.6
81 15	31.020	15	465.31	1861.22	15	27 918.0	0 35	10 191.9	51.2
16	0	6	496.33	.22	6	29 779.3	0 40	11 647.9	66.9
17	0	7	527.35	.22	7	31 640.5	0 45	13 103.8	84.7
18	0	8	558.37	.22	8	33 501.7	0 50	14 559.6	104.6
19	0	9	589.39	.22	9	35 362.9	0 55	16 015.5	126.5
81 20	31.020	20	620.41	1861.22	20	37 224.1	1 00	17 471.3	150.6
21	0	1	651.43	.23	1	39 085.4	1 05	18 927.1	176.7
22	0	2	682.45	.23	2	40 946.6	1 10	20 382.8	205.0
23	0	3	713.48	.23	3	42 807.8	1 15	21 838.5	235.3
24	1	4	744.50	.23	4	44 669.0	1 20	23 294.2	267.7
81 25	31.021	25	775.52	1861.23	25	46 530.3	1 25	24 749.8	302.2
26	1	6	806.54	.23	6	48 391.5	1 30	26 205.3	338.8
27	1	7	837.56	.24	7	50 252.7	1 35	27 660.8	377.5
28	1	8	868.58	.24	8	52 114.0	1 40	29 116.3	418.3
29	1	9	899.60	.24	9	53 975.2	1 45	30 571.7	461.2
81 30	31.021	30	930.62	1861.24	30	55 836.5	1 50	32 027.0	506.1
31	1	1	961.64	.24	1	57 697.7	1 55	33 482.2	553.2
32	1	2	992.66	.24	2	59 558.9	2 00	34 937	602
33	1	3	1 023.68	.24	3	61 420.2	2 05	36 393	652
34	1	4	1 054.70	.25	4	63 281.4	2 10	37 848	702
81 35	31.021	35	1 085.72	1861.25	35	65 142.7	2 15	39 303	752
36	1	5	1 116.74	.25	5	67 003.9	2 20	40 758	802
37	1	6	1 147.76	.25	6	68 865.2	2 25	42 213	852
38	1	7	1 178.79	.25	7	70 726.4	2 30	43 668	902
39	1	8	1 209.81	.25	8	72 587.7	2 35	45 123	952
81 40	31.021	40	1 240.83	1861.26	40	74 448.9	2 40	46 578	1002
41	1	1	1 271.85	.26	1	76 310.2	2 45	48 033	1052
42	1	2	1 302.87	.26	2	78 171.5	2 50	49 488	1102
43	1	3	1 333.89	.26	3	80 032.7	2 55	50 943	1152
44	1	4	1 364.91	.26	4	81 894.0	3 00	52 398	1202
81 45	31.021	45	1 395.93	1861.26	45	83 755.2	3 05	53 853	1252
46	1	5	1 426.95	.27	5	85 616.5	3 10	55 308	1302
47	1	6	1 457.97	.27	6	87 477.8	3 15	56 763	1352
48	1	7	1 488.99	.27	7	89 339.0	3 20	58 218	1402
49	1	8	1 520.01	.27	8	91 200.3	3 25	59 673	1452
81 50	31.021	50	1 551.03	1861.27	50	93 061.6	3 30	61 128	1502
51	1	1	1 582.05	.27	1	94 922.9	3 35	62 583	1552
52	1	2	1 613.07	.27	2	96 784.1	3 40	64 038	1602
53	1	3	1 644.10	.28	3	98 645.4	3 45	65 493	1652
54	1	4	1 675.12	.28	4	100 506.7	3 50	66 948	1702
81 55	31.021	55	1 706.14	1861.28	55	102 368.0	3 55	68 403	1752
56	1	5	1 737.16	.28	5	104 229.3	4 00	69 858	1802
57	1	6	1 768.18	.28	6	106 090.5	4 05	71 313	1852
58	1	7	1 799.20	.28	7	107 951.8	4 10	72 768	1902
59	1	8	1 830.22	.29	8	109 813.1	4 15	74 223	1952
81 60	31.021	60	1 861.24	1861.29	60	111 674.4	4 20	75 678	2002

Latitude 83° to 84°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
83 00	3.781	7.56	11.34	15.12	18.91	22.69	26.47	30.25	34.03	226.9	453.7	680.6	907.5	1134.3
01	.772	.55	.32	.09	.86	.63	.41	.18	3.95	6.3	2.7	79.0	5.3	1.7
02	.763	.53	.29	.05	.82	.58	.34	.11	.87	5.8	1.6	7.4	3.2	29.0
03	.754	.51	.26	.02	.77	.53	.28	.03	.79	5.3	50.6	5.8	901.0	6.3
04	.745	.49	.24	4.98	.73	.47	.22	29.96	.71	4.7	49.4	4.1	898.9	3.6
83 05	3.736	7.47	11.20	14.95	18.68	22.42	26.16	29.89	33.63	224.2	448.4	672.5	896.7	1120.9
06	.727	.45	.18	.91	.64	.36	.09	.82	.55	3.6	7.3	70.9	4.6	18.2
07	.718	.44	.15	.87	.59	.31	6.03	.75	.46	3.1	6.2	69.3	2.4	5.5
08	.709	.42	.13	.84	.55	.26	5.97	.67	.38	2.6	5.1	7.7	90.3	2.8
09	.700	.40	.10	.80	.50	.20	.90	.60	.30	2.0	4.1	6.1	88.1	10.1
83 10	3.692	7.38	11.07	14.77	18.46	22.15	25.84	29.53	33.22	221.5	443.0	664.5	886.0	1107.5
11	.683	.36	.05	.73	.41	.10	.78	.46	.14	1.0	1.9	2.9	3.8	4.8
12	.674	.35	1.02	.69	.37	2.04	.72	.39	3.06	20.4	40.8	61.2	81.7	102.1
13	.665	.33	0.99	.66	.32	1.99	.65	.32	2.98	19.9	39.8	59.6	79.5	99.4
14	.656	.31	.97	.62	.28	.93	.59	.25	.90	9.3	8.7	8.0	7.4	6.7
83 15	3.647	7.29	10.94	14.59	18.23	21.88	25.53	29.17	32.82	218.8	437.6	656.4	875.2	1094.0
16	.638	.28	.91	.55	.19	.83	.46	.10	.74	8.3	6.5	4.8	3.1	91.3
17	.629	.26	.89	.51	.14	.77	.40	9.03	.66	7.7	5.4	3.2	70.9	88.6
18	.620	.24	.86	.48	.10	.72	.34	8.96	.58	7.2	4.4	1.6	68.8	6.0
19	.611	.22	.83	.44	.06	.67	.27	.89	.50	6.7	3.3	50.0	6.6	3.3
83 20	3.602	7.20	10.81	14.41	18.01	21.61	25.21	28.82	32.42	216.1	432.2	648.3	864.5	1080.6
21	.593	.19	.78	.37	7.97	.56	.15	.74	.34	5.6	1.2	6.7	2.3	77.9
22	.584	.17	.75	.34	.92	.50	.09	.67	.26	5.0	30.1	5.1	60.2	5.2
23	.575	.15	.73	.30	.88	.45	5.02	.60	.18	4.5	29.0	3.5	58.0	72.5
24	.566	.13	.70	.26	.83	.40	4.96	.53	.09	4.0	7.9	1.9	5.9	69.8
83 25	3.557	7.11	10.67	14.23	17.79	21.34	24.90	28.46	32.01	213.4	426.9	640.3	853.7	1067.1
26	.548	.10	.64	.19	.74	.29	.84	.38	1.93	2.9	5.8	38.7	51.6	4.4
27	.539	.08	.62	.16	.70	.24	.78	.31	.85	2.4	4.7	7.1	49.4	61.8
28	.530	.06	.59	.12	.65	.18	.71	.24	.77	1.8	3.6	5.4	7.3	59.1
29	.521	.04	.56	.09	.61	.13	.65	.17	.69	1.3	2.6	3.8	5.1	6.4
83 30	3.512	7.02	10.54	14.05	17.56	21.07	24.59	28.10	31.61	210.7	421.5	632.2	843.0	1053.7
31	.503	.01	.51	4.01	.52	1.02	.52	8.03	.53	10.2	20.4	30.6	40.8	51.0
32	.494	6.99	.48	3.98	.47	0.97	.46	7.95	.45	09.7	19.3	29.0	38.6	48.3
33	.485	.97	.46	.94	.43	.91	.40	.88	.37	9.1	8.2	7.4	6.5	5.6
34	.476	.95	.43	.91	.38	.86	.33	.81	.29	8.6	7.2	5.8	4.3	2.9
83 35	3.467	6.93	10.40	13.87	17.34	20.80	24.27	27.74	31.21	208.0	416.1	624.1	832.2	1040.2
36	.458	.92	.38	.83	.29	.75	.21	.67	.12	7.5	5.0	2.5	30.0	37.5
37	.450	.90	.35	.80	.25	.70	.15	.60	1.05	7.0	3.9	20.9	27.9	4.9
38	.441	.88	.32	.76	.20	.64	.08	.52	0.97	6.4	2.9	19.3	5.7	32.2
39	.432	.86	.30	.73	.16	.59	4.02	.45	.88	5.9	1.8	7.7	3.6	29.5
83 40	3.423	6.85	10.27	13.69	17.11	20.54	23.96	27.38	30.80	205.4	410.7	616.1	821.4	1026.8
41	.414	.83	.24	.65	.07	.48	.90	.31	.72	4.8	09.6	4.5	19.3	4.1
42	.405	.81	.21	.62	7.02	.43	.83	.24	.64	4.3	8.6	2.8	7.1	21.4
43	.396	.79	.19	.58	6.98	.37	.77	.17	.56	3.7	7.5	11.2	5.0	18.7
44	.387	.77	.16	.55	.93	.32	.71	.09	.48	3.2	6.4	09.6	2.8	6.0
83 45	3.378	6.76	10.13	13.51	16.89	20.27	23.64	27.02	30.40	202.7	405.3	608.0	810.7	1013.3
46	.369	.74	.11	.47	.84	.21	.58	6.95	.32	2.1	4.3	6.4	08.5	10.6
47	.360	.72	.08	.44	.80	.16	.52	.88	.24	1.6	3.2	4.8	6.4	07.9
48	.351	.70	.05	.40	.75	.11	.46	.81	.16	1.1	2.1	3.2	4.2	5.3
49	.342	.68	.03	.37	.71	.05	.39	.74	.08	0.5	1.0	601.5	802.1	1002.6
83 50	3.333	6.67	10.00	13.33	16.67	20.00	23.33	26.66	30.00	200.0	400.0	599.9	799.9	999.9
51	.324	.65	9.97	.30	.62	19.94	.27	.59	29.92	199.4	398.9	8.3	7.7	7.2
52	.315	.63	.95	.26	.58	.89	.20	.52	.84	8.9	7.8	6.7	5.6	4.5
53	.306	.61	.92	.22	.53	.84	.14	.45	.75	8.4	6.7	5.1	3.4	91.8
54	.297	.59	.89	.19	.49	.78	.08	.38	.67	7.8	5.6	3.5	91.3	89.1
83 55	3.288	6.58	9.86	13.15	16.44	19.73	23.01	26.30	29.59	197.3	394.6	591.8	789.1	986.4
56	.279	.56	.84	.11	.40	.67	2.95	.23	.51	6.7	3.5	90.2	7.0	3.7
57	.270	.54	.81	.08	.35	.62	.89	.16	.43	6.2	2.4	88.6	4.8	81.0
58	.261	.52	.78	.04	.31	.57	.83	.09	.35	5.7	1.3	7.0	2.7	78.3
59	.252	.50	.76	3.01	.26	.51	.76	6.02	.27	5.1	90.3	5.4	80.5	5.6
83 60	3.243	6.49	9.73	12.97	16.22	19.46	22.70	25.94	29.19	194.6	389.2	583.8	778.4	972.9

Lat.	Latitude 83° to 84°—Meridional arcs.						Latitude 83°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 83° 30'		Value of 1'	Continuous sums of minutes from latitude 83° 00'		Longitude.	X	Y
° /	Meters.	''	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
83 00	31.023			1861.37			0 1	226.9	0.0
1	3	1	31.02	.38	1	1 861.4	0 2	453.7	0.1
2	3	2	62.05	.38	2	3 722.7	0 3	680.6	0.3
3	3	3	93.07	.38	3	5 584.1	0 4	907.5	0.5
4	3	4	124.09	.38	4	7 445.5	0 5	1 134.3	0.8
83 05	31.023	5	155.12	1861.38	5	9 306.9	0 6	1 361.2	1.2
6	3	6	186.14	.38	6	11 168.3	0 7	1 588.1	1.6
7	3	7	217.16	.38	7	13 029.6	0 8	1 814.9	2.1
8	3	8	248.19	.38	8	14 891.0	0 9	2 041.8	2.7
9	3	9	279.21	.39	9	16 752.4			
83 10	31.023	10	310.24	1861.39	10	18 613.8	0 10	2 268.7	3.3
11	3	1	341.26	.39	1	20 475.2	0 15	3 403.0	7.4
12	3	2	372.28	.39	2	22 336.6	0 20	4 537.3	13.1
13	3	3	403.31	.39	3	24 197.9	0 25	5 671.6	20.5
14	3	4	434.33	.39	4	26 059.3	0 30	6 805.9	29.5
83 15	31.023	15	465.35	1861.39	15	27 920.7	0 35	7 940.2	40.1
16	3	6	496.38	.39	6	29 782.1	0 40	9 074.5	52.4
17	3	7	527.40	.40	7	31 643.5	0 45	10 208.7	66.3
18	3	8	558.42	.40	8	33 504.9	0 50	11 343.0	81.9
19	3	9	589.45	.40	9	35 366.3	0 55	12 477.2	99.1
83 20	31.023	20	620.47	1861.40	20	37 227.7	1 00	13 611.4	117.9
21	3	1	651.49	.40	1	39 089.1	1 05	14 745.5	138.4
22	3	2	682.52	.40	2	40 950.5	1 10	15 879.6	160.5
23	3	3	713.54	.40	3	42 811.9	1 15	17 013.7	184.2
24	3	4	744.56	.40	4	44 673.3	1 20	18 147.8	209.6
83 25	31.023	25	775.59	1861.41	25	46 534.7	1 25	19 281.8	236.6
26	3	6	806.61	.41	6	48 396.1	1 30	20 415.8	265.3
27	3	7	837.64	.41	7	50 257.5	1 35	21 549.7	295.6
28	3	8	868.66	.41	8	52 118.9	1 40	22 683.6	327.5
29	4	9	899.68	.41	9	53 980.3	1 45	23 817.4	361.1
83 30	31.024	30	930.71	1861.41	30	55 841.7	1 50	24 951.2	396.3
31	4	1	961.73	.41	1	57 703.2	1 55	26 084.9	433.1
32	4	2	992.75	.41	2	59 564.6	2 00	27 219	472
33	4	3	1 023.78	.42	3	61 426.0	2 05	28 353	511
34	4	4	1 054.80	.42	4	63 287.4	2 10	29 487	550
83 35	31.024	35	1 085.82	1861.42	35	65 148.8	2 15	30 621	589
36	4	6	1 116.85	.42	6	67 010.2	2 20	31 755	628
37	4	7	1 147.87	.42	7	68 871.7	2 25	32 889	667
38	4	8	1 178.89	.42	8	70 733.1	2 30	34 023	706
39	4	9	1 209.92	.42	9	72 594.5	2 35	35 157	745
83 40	31.024	40	1 240.94	1861.42	40	74 455.9	2 40	36 291	784
41	4	1	1 271.96	.43	1	76 317.3	2 45	37 425	823
42	4	2	1 302.99	.43	2	78 178.8	2 50	38 559	862
43	4	3	1 334.01	.43	3	80 040.2	2 55	39 693	901
44	4	4	1 365.04	.43	4	81 901.6	3 00	40 827	940
83 45	31.024	45	1 396.06	1861.43	45	83 763.1	3 05	41 961	979
46	4	6	1 427.08	.43	6	85 624.5	3 10	43 095	1018
47	4	7	1 458.11	.43	7	87 485.9	3 15	44 229	1057
48	4	8	1 489.13	.43	8	89 347.4	3 20	45 363	1096
49	4	9	1 520.15	.43	9	91 208.8	3 25	46 497	1135
83 50	31.024	50	1 551.18	1861.44	50	93 070.2	3 30	47 631	1174
51	4	1	1 582.20	.44	1	94 931.7	3 35	48 765	1213
52	4	2	1 613.22	.44	2	96 793.1	3 40	49 899	1252
53	4	3	1 644.25	.44	3	98 654.5	3 45	51 033	1291
54	4	4	1 675.27	.44	4	100 516.0	3 50	52 167	1330
83 55	31.024	55	1 706.29	1861.44	55	102 377.4	3 55	53 301	1369
56	4	6	1 737.32	.44	6	104 238.9	4 00	54 435	1408
57	4	7	1 768.34	.44	7	106 100.3	4 05	55 569	1447
58	4	8	1 799.36	.45	8	107 961.8	4 10	56 703	1486
59	4	9	1 830.39	.45	9	109 823.2	4 15	57 837	1525
83 60	31.024	60	1 861.41	1861.45	60	111 684.7	4 20	58 971	1564

Latitude 84° to 85°—Arcs of the parallel in meters.

Lat.	1''	2''	3''	4''	5''	6''	7''	8''	9''	1'	2'	3'	4'	5'
84 00	3.243	6.49	9.73	12.97	16.22	19.46	22.70	25.94	29.19	194.6	389.2	583.8	778.4	972.9
1	.234	.47	.70	.94	.17	.41	.64	.87	.11	4.1	8.1	2.2	6.2	70.3
2	.225	.45	.68	.90	.13	.35	.58	.80	.03	3.5	7.0	80.5	4.0	67.6
3	.216	.43	.65	.86	.08	.30	.51	.73	.95	3.0	5.9	78.9	71.9	4.9
4	.207	.41	.62	.83	6.04	.24	.45	.66	.87	2.4	4.9	7.3	69.7	62.2
84 05	3.198	6.40	9.59	12.79	15.99	9.19	22.39	25.59	28.78	191.9	383.8	575.7	767.6	959.5
6	.189	.38	.57	.76	6.95	.14	.33	.51	.70	1.4	2.7	4.1	5.4	6.8
7	.180	.36	.54	.72	.90	.08	.26	.44	.62	0.8	1.6	2.5	3.3	4.1
8	.171	.34	.51	.69	.86	9.03	.20	.37	.54	90.3	80.6	70.8	61.1	51.4
9	.162	.32	.49	.65	.81	8.97	.14	.30	.46	89.7	79.5	69.2	59.0	48.7
84 10	3.153	6.31	9.46	12.61	15.77	18.92	22.07	25.23	28.38	189.2	378.4	567.6	756.8	946.0
11	.144	.29	.43	.58	.72	.87	2.01	.15	.30	8.7	7.3	6.0	4.7	3.3
12	.135	.27	.41	.54	.68	.81	1.95	.08	.22	8.1	6.2	4.4	2.5	40.6
13	.126	.25	.38	.50	.63	.76	.88	5.01	.14	7.6	5.2	2.8	50.3	37.9
14	.117	.23	.35	.47	.59	.70	.82	4.94	8.06	7.0	4.1	61.1	48.2	5.2
84 15	3.108	6.22	9.33	12.43	15.54	18.65	21.76	24.87	27.97	186.5	373.0	559.5	746.0	932.5
16	.099	.20	.30	.40	.50	.60	.70	.79	.89	6.0	1.9	7.9	3.9	29.8
17	.091	.18	.27	.36	.45	.54	.63	.73	.82	5.4	70.9	6.3	41.7	7.2
18	.082	.16	.24	.33	.41	.49	.57	.65	.73	4.9	69.8	4.7	39.6	4.5
19	.073	.14	.22	.29	.36	.44	.51	.58	.65	4.4	8.7	3.1	7.4	21.8
84 20	3.064	6.13	9.19	12.25	15.32	18.38	21.45	24.51	27.57	183.8	367.6	551.4	735.3	919.1
21	.055	.11	.16	.22	.27	.33	.38	.44	.49	3.3	6.5	49.8	3.1	6.4
22	.046	.09	.14	.18	.23	.27	.32	.37	.41	2.7	5.5	8.2	30.9	3.7
23	.037	.07	.11	.14	.18	.22	.26	.29	.33	2.2	4.4	6.6	28.8	11.0
24	.028	.06	.08	.11	.14	.17	.19	.22	.25	1.7	3.3	5.0	6.6	08.3
84 25	3.019	6.04	9.06	12.07	15.09	18.11	21.13	24.15	27.17	181.1	362.2	543.4	724.5	905.6
26	.010	.02	.03	.04	.05	.06	.07	.08	.09	0.6	1.2	1.7	2.3	2.9
27	3.001	6.00	9.00	2.00	5.00	8.00	1.00	4.01	7.01	80.0	60.1	40.1	20.2	900.2
28	2.992	5.99	8.97	1.97	4.96	7.95	0.94	3.93	6.92	79.5	59.0	38.5	18.0	897.5
29	.983	.97	.95	.93	.91	.90	.88	.86	.84	9.0	7.9	6.9	5.9	4.8
84 30	2.974	5.95	8.92	11.89	14.87	17.84	20.82	23.79	26.76	178.4	356.8	535.3	713.7	892.1
31	.965	.93	.89	.86	.82	.79	.75	.72	.68	7.9	5.8	3.7	11.5	89.4
32	.956	.91	.87	.82	.78	.73	.69	.65	.60	7.3	4.7	2.0	09.4	6.7
33	.947	.89	.84	.79	.73	.68	.63	.57	.52	6.8	3.6	30.4	7.2	4.0
34	.938	.88	.81	.75	.69	.63	.56	.50	.44	6.3	2.5	28.8	5.1	81.3
84 35	2.929	5.86	8.79	11.71	14.64	17.57	20.50	23.43	26.36	175.7	351.4	527.2	702.9	878.6
36	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	50.4	5.7	700.8	6.0
37	.911	.82	.73	.65	.56	.47	.38	.29	.20	4.7	49.3	4.0	698.6	3.3
38	.902	.81	.71	.61	.51	.41	.32	.22	.12	4.1	8.2	2.3	6.5	70.6
39	.893	.79	.68	.57	.47	.36	.26	.15	6.04	3.6	7.1	20.7	4.3	67.9
84 40	2.884	5.77	8.65	11.54	14.42	17.30	20.19	23.07	25.96	173.0	346.1	519.1	692.1	865.2
41	.875	.75	.62	.50	.38	.25	.13	3.00	.88	2.5	5.0	7.5	90.0	62.5
42	.866	.73	.60	.46	.33	.20	.06	2.93	.79	2.0	3.9	5.9	87.8	59.8
43	.857	.71	.57	.43	.29	.14	20.00	.86	.71	1.4	2.8	4.3	5.7	7.1
44	.848	.70	.54	.39	.24	.09	19.94	.78	.63	0.9	1.8	2.6	3.5	4.4
84 45	2.839	5.68	8.52	11.36	14.20	17.03	19.87	22.71	25.55	170.3	340.7	511.0	681.4	851.7
46	.830	.66	.49	.32	.15	6.98	.81	.64	.47	69.8	39.6	09.4	79.2	49.0
47	.821	.64	.46	.28	.11	.93	.75	.57	.39	9.3	8.5	7.8	7.0	6.3
48	.812	.62	.44	.25	.06	.87	.68	.50	.31	8.7	7.4	6.2	4.9	3.6
49	.803	.61	.41	.21	4.02	.82	.62	.42	.23	8.2	6.4	4.5	2.7	40.9
84 50	2.794	5.59	8.38	11.18	13.97	16.76	19.56	22.35	25.15	167.6	335.3	502.9	670.6	838.2
51	.785	.57	.35	.14	.93	.71	.50	.28	5.07	7.1	4.2	501.3	68.4	5.5
52	.776	.55	.33	.10	.88	.66	.43	.21	4.98	6.6	3.1	499.7	6.3	2.8
53	.767	.53	.30	.07	.84	.60	.37	.14	.90	6.0	2.0	8.1	4.1	30.1
54	.758	.52	.27	.03	.79	.55	.31	2.06	.82	5.5	31.0	6.5	61.9	27.4
84 55	2.749	5.50	8.25	11.00	13.75	16.49	19.24	21.99	24.74	164.9	329.9	494.8	659.8	824.7
56	.740	.48	.22	0.96	.70	.44	.18	.92	.66	4.4	8.8	3.2	7.6	22.0
57	.731	.46	.19	.92	.66	.39	.12	.85	.58	3.9	7.7	1.6	5.5	19.3
58	.722	.44	.17	.89	.61	.33	.95	.78	.50	3.3	6.7	90.0	3.3	6.6
59	.713	.43	.14	.85	.57	.28	8.99	.70	.42	2.8	5.6	88.4	51.2	3.9
84 60	2.704	5.41	8.11	10.82	13.52	16.22	18.93	21.63	24.34	162.2	324.5	486.7	649.0	811.2

Lat.	Latitude 84° to 85°—Meridional arcs.						Latitude 84°—Co-ordinates of curvature.		
	Value of 1''	Sums of seconds for middle latitude 84° 30'		Value of 1'	Continuous sums of minutes from latitude 84° 00'		Longitude.	X	Y
° ' "	Meters.	''	Meters.	Meters.	' "	Meters.	° ' "	Meters.	Meters.
84 00	31.024			1861.45			0 0		
1	4	1	31.02	.45	1	1 861.4	0 1	194.6	0.0
2	4	2	62.05	.45	2	3 722.9	2	389.2	0.1
3	4	3	93.07	.45	3	5 584.4	3	583.8	0.3
4	4	4	124.10	.45	4	7 445.8	4	778.3	0.5
84 05	31.024	5	155.12	1861.45	5	9 307.3	0 5	972.9	0.7
6	4	6	186.15	.45	6	11 168.7	6	1 167.5	1.0
7	4	7	217.17	.46	7	13 030.2	7	1 362.1	1.4
8	4	8	248.20	.46	8	14 891.6	8	1 556.7	1.8
9	4	9	279.22	.46	9	16 753.1	9	1 751.3	2.3
84 10	31.024	10	310.25	1861.46	10	18 614.5	0 10	1 945.9	2.8
11	4	1	341.27	.46	1	20 476.0	15	2 918.8	6.3
12	4	2	372.30	.46	2	22 337.5	20	3 891.8	11.3
13	4	3	403.32	.46	3	24 198.9	25	4 864.7	17.6
14	4	4	434.35	.46	4	26 060.4	30	5 837.6	25.3
84 15	31.024	15	465.37	1861.46	15	27 921.9	0 35	6 810.5	34.5
16	4	6	496.39	.47	6	29 783.3	40	7 783.4	45.0
17	4	7	527.42	.47	7	31 644.8	45	8 756.2	57.0
18	4	8	558.44	.47	8	33 506.3	50	9 729.1	70.4
19	4	9	589.47	.47	9	35 367.7	55	10 701.9	85.1
84 20	31.025	20	620.49	1861.47	20	37 229.2	1 00	11 674.7	101.3
21	5	1	651.52	.47	1	39 090.7	05	12 647.5	118.9
22	5	2	682.54	.47	2	40 952.1	10	13 620.3	137.9
23	5	3	713.57	.47	3	42 813.6	15	14 593.0	158.3
24	5	4	744.59	.47	4	44 675.1	20	15 565.7	180.1
84 25	31.025	25	775.62	1861.48	25	46 536.6	1 25	16 538.4	203.3
26	5	6	806.64	.48	6	48 398.0	30	17 511.0	228.0
27	5	7	837.67	.48	7	50 259.5	35	18 483.6	254.0
28	5	8	868.69	.48	8	52 121.0	40	19 456.2	281.5
29	5	9	899.72	.48	9	53 982.5	45	20 428.7	310.3
84 30	31.025	30	930.74	1861.48	30	55 844.0	1 50	21 401.2	340.6
31	5	1	961.77	.48	1	57 705.4	55	22 373.6	372.2
32	5	2	992.79	.48	2	59 566.9	2 00	23 346	405
33	5	3	1 023.81	.48	3	61 428.4	3 00	35 010	912
34	5	4	1 054.84	.49	4	63 289.9	4 00	46 664	1 621
84 35	31.025	35	1 085.86	1861.49	35	65 151.4	5 00	58 303	2 532
36	5	5	1 116.89	.49	5	67 012.9	6 00	69 925	3 644
37	5	7	1 147.91	.49	7	68 874.4	7 00	81 526	4 959
38	5	8	1 178.94	.49	8	70 735.9	8 00	93 103	6 475
39	5	9	1 209.96	.49	9	72 597.3	9 00	104 651	8 191
84 40	31.025	40	1 240.99	1861.49	40	74 458.8	10 00	116 168	10 107
41	5	1	1 272.01	.49	1	76 320.3	11 00	127 650	12 223
42	5	2	1 303.04	.49	2	78 181.8	12 00	139 093	14 539
43	5	3	1 334.06	.49	3	80 043.3	13 00	150 494	17 052
44	5	4	1 365.09	.50	4	81 904.8	14 00	161 851	19 763
84 45	31.025	45	1 396.11	1861.50	45	83 766.3	15 00	173 158	22 670
46	5	6	1 427.14	.50	6	85 627.8	16 00	184 413	25 774
47	5	7	1 458.16	.50	7	87 489.3	17 00	195 613	29 072
48	5	8	1 489.18	.50	8	89 350.8	18 00	206 753	32 564
49	5	9	1 520.21	.50	9	91 212.3	19 00	217 832	36 249
84 50	31.025	50	1 551.23	1861.50	50	93 073.8	20 00	228 845	40 126
51	5	1	1 582.26	.50	1	94 935.3	21 00	239 788	44 193
52	5	2	1 613.28	.50	2	96 796.8	22 00	250 660	48 450
53	5	3	1 644.31	.50	3	98 658.3	23 00	261 456	52 894
54	5	4	1 675.33	.51	4	100 519.8	24 00	272 173	57 526
84 55	31.025	55	1 706.36	1861.51	55	102 381.3	25 00	282 809	62 343
56	5	6	1 737.38	.51	6	104 242.8	26 00	293 359	67 343
57	5	7	1 768.41	.51	7	106 104.3	27 00	303 820	72 526
58	5	8	1 799.43	.51	8	107 965.9	28 00	314 190	77 890
59	5	9	1 830.46	.51	9	109 827.4	29 00	324 466	83 433
84 60	31.025	60	1 861.48	1861.51	60	111 688.9	30 00	334 644	89 153

Latitude 85° to 86°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
85 00	2.704	5.41	8.11	10.82	13.52	16.22	18.93	21.63	24.34	162.2	324.5	486.7	649.0	811.2
1	.605	.39	.09	.78	.48	.17	.87	.56	.26	1.7	3.4	5.1	6.8	8.6
2	.686	.37	.06	.75	.43	.12	.80	.49	.18	1.2	2.3	3.5	4.7	5.9
3	.677	.35	.03	.71	.39	.06	.74	.42	.10	0.6	1.3	1.9	2.5	3.2
4	.668	.34	8.00	.67	.34	6.01	.68	.35	4.02	60.1	20.2	80.3	40.4	800.5
85 05	2.659	5.32	7.98	10.64	13.30	15.96	18.62	21.27	23.93	159.6	319.1	478.7	638.2	797.8
5	.650	.30	.95	.60	.25	.90	.55	.20	.85	9.0	8.0	7.0	6.1	5.1
6	.641	.28	.92	.57	.21	.85	.49	.13	.77	8.5	7.0	5.4	3.9	92.4
7	.632	.26	.90	.53	.16	.79	.43	1.06	.69	7.9	5.9	3.8	31.7	89.7
8	.623	.25	.87	.49	.12	.74	.36	0.99	.61	7.4	4.8	2.2	29.6	7.0
85 10	2.614	5.23	7.84	10.46	13.07	15.69	18.30	20.91	23.53	156.9	313.7	470.6	627.4	784.3
11	.605	.21	.82	.42	3.03	.63	.24	.84	.45	6.3	2.6	68.9	5.3	81.6
12	.596	.19	.79	.39	2.98	.58	.17	.77	.37	5.8	1.6	7.3	3.1	78.9
13	.587	.17	.76	.35	.94	.52	.11	.70	.29	5.2	10.5	5.7	20.9	6.2
14	.578	.16	.73	.31	.89	.47	8.05	.63	.21	4.7	09.4	4.1	18.8	3.5
85 15	2.569	5.14	7.71	10.28	12.85	15.42	17.99	20.55	23.12	154.2	308.3	462.5	616.6	770.8
15	.560	.12	.68	.24	.80	.36	.92	.48	3.04	3.6	7.2	60.9	4.5	68.1
16	.551	.10	.65	.21	.76	.31	.86	.41	2.96	3.1	6.2	59.2	2.3	5.4
17	.542	.08	.63	.17	.71	.25	.80	.34	.88	2.5	5.1	7.6	10.2	2.7
18	.533	.07	.60	.13	.67	.20	.73	.27	.80	2.0	4.0	6.0	08.0	60.0
85 20	2.524	5.05	7.57	10.10	12.62	15.15	17.67	20.19	22.72	151.5	302.9	454.4	605.8	757.3
21	.515	.03	.55	.06	.58	.09	.61	.12	.64	0.9	1.8	2.8	3.7	4.6
22	.506	5.01	.52	10.03	.53	5.04	.54	20.05	.56	50.4	300.8	51.1	601.5	51.9
23	.497	4.99	.49	9.99	.49	4.98	.48	19.98	.48	49.8	299.7	49.5	599.4	49.2
24	.488	.98	.46	.95	.44	.93	.42	.91	.40	9.3	8.6	7.9	7.2	6.5
85 25	2.479	4.96	7.44	9.92	12.40	14.88	17.36	19.83	22.31	148.8	297.5	446.3	595.0	743.8
25	.470	.94	.41	.88	.35	.82	.29	.76	.23	8.2	6.4	4.7	2.9	41.1
26	.461	.92	.38	.85	.31	.77	.23	.69	.15	7.7	5.4	3.0	90.7	38.4
27	.452	.90	.36	.81	.26	.71	.17	.62	2.07	7.1	4.3	41.4	88.6	5.7
28	.443	.89	.33	.77	.22	.66	.10	.55	1.99	6.6	3.2	39.8	6.4	3.0
85 30	2.434	4.87	7.30	9.74	12.17	14.61	17.04	19.47	21.91	146.1	292.1	438.2	584.2	730.3
31	.425	.85	.28	.70	.13	.55	6.98	.40	.83	5.5	1.0	6.6	82.1	27.6
32	.416	.83	.25	.67	.08	.50	.91	.33	.75	5.0	90.0	4.9	79.9	4.9
33	.407	.81	.22	.63	2.04	.44	.85	.26	.67	4.4	88.9	3.3	7.8	22.2
34	.398	.80	.19	.59	1.99	.39	.79	.19	.59	3.9	7.8	1.7	5.6	19.5
85 35	2.389	4.78	7.17	9.56	11.95	14.34	16.73	19.11	21.50	143.4	286.7	430.1	573.4	716.8
35	.380	.76	.14	.52	.90	.28	.66	9.04	.42	2.8	5.6	28.5	71.3	4.1
36	.371	.74	.11	.49	.86	.23	.60	8.97	.34	2.3	4.6	6.8	69.1	11.4
37	.362	.72	.09	.45	.81	.17	.54	.90	.26	1.7	3.5	5.2	7.0	08.7
38	.353	.71	.06	.41	.77	.12	.47	.83	.18	1.2	2.4	3.6	4.8	6.0
85 40	2.344	4.69	7.03	9.38	11.72	14.07	16.41	18.75	21.10	140.7	281.3	422.0	562.6	703.3
41	.335	.67	7.01	.34	.68	4.01	.35	.68	1.02	40.1	80.2	20.4	60.5	700.6
42	.326	.65	6.98	.31	.63	3.96	.28	.61	0.94	39.6	79.2	18.7	58.3	697.9
43	.317	.63	.95	.27	.59	.90	.22	.54	.86	9.0	8.1	7.1	6.2	5.2
44	.308	.62	.92	.23	.54	.85	.16	.47	.78	8.5	7.0	5.5	4.0	92.5
85 45	2.299	4.60	6.90	9.20	11.50	13.80	16.10	18.39	20.69	138.0	275.9	413.9	551.8	689.8
45	.290	.58	.87	.16	.45	.74	6.03	.32	.61	7.4	4.8	2.3	49.7	7.1
46	.281	.56	.84	.13	.41	.69	5.97	.25	.53	6.9	3.8	10.6	7.5	4.4
47	.272	.54	.82	.09	.36	.63	.91	.18	.45	6.3	2.7	99.0	5.4	81.7
48	.263	.53	.79	.05	.32	.58	.84	.11	.37	5.8	1.6	7.4	3.2	79.0
85 50	2.254	4.51	6.76	9.02	11.27	13.53	15.78	18.03	20.29	135.3	270.5	405.8	541.0	676.3
51	.245	.49	.74	8.98	.23	.47	.72	7.96	.21	4.7	69.4	4.2	38.9	3.6
52	.236	.47	.71	.95	.18	.42	.65	.89	.13	4.2	8.4	2.5	6.7	70.9
53	.227	.45	.68	.91	.14	.36	.59	.82	20.05	3.6	7.3	400.9	4.6	68.2
54	.218	.44	.65	.87	.09	.31	.53	.75	19.97	3.1	6.2	399.3	2.4	5.5
85 55	2.209	4.42	6.63	8.84	11.05	13.26	15.46	17.67	19.88	132.6	265.1	397.7	530.2	662.8
55	.200	.40	.60	.80	1.00	.20	.40	.60	.80	2.0	4.0	6.1	28.1	60.1
56	.191	.38	.57	.77	0.96	.15	.34	.53	.72	1.5	3.0	4.4	5.9	57.4
57	.182	.36	.55	.73	.91	.09	.28	.46	.64	0.9	1.9	2.8	3.8	4.7
58	.173	.35	.52	.69	.87	.04	.21	.39	.56	30.4	60.8	91.2	21.6	52.0
85 60	2.164	4.33	6.49	8.66	10.82	12.99	15.15	17.31	19.48	129.9	259.7	389.6	519.4	649.3

Lat.	Latitude 85° to 86°—Meridional arcs.						Latitude 85°—Co-ordinates of curvature.		
	Value of 1'	Sums of seconds for middle latitude 85° 30'		Value of 1'	Continuous sums of minutes from latitude 85° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
85 00	31.025			1861.51			0 1	162.2	0.0
1	5	1	31.03	.51	1	1 861.5	0 1	162.2	0.0
2	5	2	62.05	.51	2	3 723.0	2	324.5	0.1
3	5	3	93.08	.51	3	5 584.5	3	486.7	0.2
4	5	4	124.10	.51	4	7 446.0	4	649.0	0.4
85 05	31.025	5	155.13	1861.52	5	9 307.6	0 5	811.2	0.6
6	5	6	186.15	.52	6	11 169.1	6	973.5	0.8
7	5	7	217.18	.52	7	13 030.6	7	1 135.7	1.1
8	5	8	248.21	.52	8	14 892.1	8	1 298.0	1.5
9	5	9	279.23	.52	9	16 753.6	9	1 460.2	1.9
85 10	31.025	10	310.26	1861.52	10	18 615.2	0 10	1 622.5	2.3
11	5	1	341.28	.52	1	20 476.7	15	2 433.7	5.3
12	5	2	372.31	.52	2	22 338.2	20	3 245.0	9.4
13	5	3	403.33	.52	3	24 199.7	25	4 056.2	14.7
14	5	4	434.36	.52	4	26 061.2	30	4 867.4	21.2
85 15	31.025	15	465.38	1861.53	15	27 922.8	0 35	5 678.6	28.8
16	5	6	496.41	.53	6	29 784.3	40	6 489.8	37.6
17	5	7	527.44	.53	7	31 645.8	45	7 301.0	47.6
18	5	8	558.46	.53	8	33 507.3	50	8 112.2	58.8
19	5	9	589.49	.53	9	35 368.9	55	8 923.3	71.1
85 20	31.025	20	620.51	1861.53	20	37 230.4	1 00	9 734.5	84.6
21	6	1	651.54	.53	1	39 091.9	05	10 545.6	99.3
22	6	2	682.56	.53	2	40 953.5	10	11 356.7	115.2
23	6	3	713.59	.53	3	42 815.0	15	12 167.8	132.2
24	6	4	744.62	.53	4	44 676.5	20	12 978.8	150.4
85 25	31.026	25	775.64	1861.53	25	46 538.1	1 25	13 789.8	169.8
26	6	6	806.67	.54	6	48 399.6	30	14 600.8	190.4
27	6	7	837.69	.54	7	50 261.1	35	15 411.8	212.2
28	6	8	868.72	.54	8	52 122.7	40	16 222.7	235.1
29	6	9	899.74	.54	9	53 984.2	45	17 033.6	259.2
85 30	31.026	30	930.77	1861.54	30	55 845.7	1 50	17 844.5	284.4
31	6	1	961.79	.54	1	57 707.3	55	18 655.3	310.9
32	6	2	992.82	.54	2	59 568.8	2 00	19 466	338
33	6	3	1 023.85	.54	3	61 430.4	3 00	20 277	366
34	6	4	1 054.87	.54	4	63 291.9	4 00	21 088	394
85 35	31.026	35	1 085.90	1861.54	35	65 153.4	5 00	21 899	422
36	6	6	1 116.92	.54	6	67 015.0	6 00	22 710	450
37	6	7	1 147.95	.54	7	68 876.5	7 00	23 521	478
38	6	8	1 178.97	.55	8	70 738.1	8 00	24 332	506
39	6	9	1 210.00	.55	9	72 599.6	9 00	25 143	534
85 40	31.026	40	1 241.03	1861.55	40	74 461.2	10 00	25 954	562
41	6	1	1 272.05	.55	1	76 322.7	11 00	26 765	590
42	6	2	1 303.08	.55	2	78 184.3	12 00	27 576	618
43	6	3	1 334.10	.55	3	80 045.8	13 00	28 387	646
44	6	4	1 365.13	.55	4	81 907.4	14 00	29 198	674
85 45	31.026	45	1 396.15	1861.55	45	83 768.9	15 00	30 009	702
46	6	6	1 427.18	.55	6	85 630.5	16 00	30 820	730
47	6	7	1 458.21	.55	7	87 492.0	17 00	31 631	758
48	6	8	1 489.23	.55	8	89 353.6	18 00	32 442	786
49	6	9	1 520.26	.55	9	91 215.2	19 00	33 253	814
85 50	31.026	50	1 551.28	1861.56	50	93 076.7	20 00	34 064	842
51	6	1	1 582.31	.56	1	94 938.3	21 00	34 875	870
52	6	2	1 613.33	.56	2	96 799.8	22 00	35 686	898
53	6	3	1 644.36	.56	3	98 661.4	23 00	36 497	926
54	6	4	1 675.38	.56	4	100 522.9	24 00	37 308	954
85 55	31.026	55	1 706.41	1861.56	55	102 384.5	25 00	38 119	982
56	6	6	1 737.44	.56	6	104 246.1	26 00	38 930	1010
57	6	7	1 768.46	.56	7	106 107.6	27 00	39 741	1038
58	6	8	1 799.49	.56	8	107 969.2	28 00	40 552	1066
59	6	9	1 830.51	.56	9	109 830.8	29 00	41 363	1094
85 60	31.026	60	1 861.54	1861.56	60	111 692.3	30 00	42 174	1122

Latitude 86° to 87°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
86 00	2.164	4.33	6.49	8.66	10.82	12.99	15.15	17.31	19.48	129.9	259.7	389.6	519.4	649.3
1	.155	.31	.47	.62	.78	.93	.09	.24	.40	9.3	8.6	8.0	7.3	6.6
2	.146	.29	.44	.59	.73	.88	.5.02	.17	.32	8.8	7.6	6.3	5.1	3.9
3	.137	.27	.41	.55	.69	.82	4.96	.10	.24	8.2	6.5	4.7	3.0	41.2
4	.128	.26	.38	.51	.64	.77	.90	7.03	.16	7.7	5.4	3.1	10.8	38.5
86 05	2.119	4.24	6.36	8.48	10.60	12.72	14.83	16.95	19.07	127.2	254.3	381.5	508.6	635.8
6	.110	.22	.33	.44	.55	.66	.77	.88	8.99	6.6	3.2	79.9	6.5	3.1
7	.101	.20	.30	.41	.51	.61	.71	.81	.91	6.1	2.2	8.2	4.3	30.4
8	.092	.18	.28	.37	.46	.55	.65	.74	.83	5.5	1.1	6.6	2.2	27.7
9	.083	.17	.25	.33	.42	.50	.58	.67	.75	5.0	50.0	5.0	500.0	5.0
86 10	2.074	4.15	6.22	8.30	10.37	12.45	14.52	16.59	18.67	124.5	248.9	373.4	497.8	622.3
11	.065	.13	.20	.26	.33	.39	.46	.52	.59	3.9	7.8	1.8	5.7	19.6
12	.056	.11	.17	.23	.28	.34	.39	.45	.51	3.4	6.8	70.1	3.5	6.9
13	.047	.09	.14	.19	.24	.28	.33	.38	.43	2.8	5.7	68.5	91.3	4.2
14	.038	.08	.11	.15	.19	.23	.27	.31	.35	2.3	4.6	6.9	89.2	11.5
86 15	2.029	4.06	6.09	8.12	10.15	12.18	14.20	16.23	18.26	121.8	243.5	365.3	487.0	608.8
16	.020	.04	.06	.08	.10	.12	.14	.16	.18	1.2	2.4	3.6	4.9	6.1
17	.011	.02	.03	.05	.06	.07	.08	.09	.10	0.7	1.3	2.0	2.7	3.4
18	2.002	4.00	6.01	8.01	10.01	2.01	4.02	6.02	8.02	20.1	40.3	60.4	80.5	600.7
19	1.993	3.99	5.98	7.97	9.97	1.96	3.95	5.95	7.94	19.6	39.2	58.8	78.4	598.0
86 20	1.984	3.97	5.95	7.94	9.92	11.91	13.89	15.87	17.86	119.1	238.1	357.2	476.2	595.3
21	.975	.95	.93	.90	.88	.85	.83	.80	.78	8.5	7.0	5.5	4.0	92.6
22	.966	.93	.90	.87	.83	.80	.76	.73	.70	8.0	5.9	3.9	71.9	89.9
23	.957	.91	.87	.83	.79	.74	.70	.66	.62	7.4	4.9	2.3	69.7	7.2
24	.948	.90	.84	.79	.74	.69	.64	.59	.54	6.9	3.8	50.7	7.6	4.5
86 25	1.939	3.88	5.82	7.76	9.70	11.64	13.58	15.51	17.45	116.4	232.7	349.1	465.4	581.8
26	.930	.86	.79	.72	.65	.58	.51	.44	.37	5.8	1.6	7.4	3.2	79.0
27	.921	.84	.76	.68	.61	.53	.45	.37	.29	5.3	30.5	5.8	61.1	6.3
28	.912	.82	.74	.65	.56	.47	.38	.30	.21	4.7	29.5	4.2	58.9	3.6
29	.903	.81	.71	.61	.52	.42	.32	.22	.13	4.2	8.4	2.6	6.8	70.9
86 30	1.894	3.79	5.68	7.58	9.47	11.36	13.26	15.15	17.05	113.6	227.3	340.9	454.6	568.2
31	.885	.77	.65	.54	.43	.31	.20	.08	6.97	3.1	6.2	39.3	2.4	5.5
32	.876	.75	.63	.50	.38	.26	.13	5.01	.88	2.6	5.1	7.7	50.3	2.8
33	.867	.73	.60	.47	.34	.20	.07	4.94	.80	2.0	4.1	6.1	48.1	60.1
34	.858	.72	.57	.43	.29	.15	3.01	.86	.72	1.5	3.0	4.5	5.9	57.4
86 35	1.849	3.70	5.55	7.40	9.25	11.09	12.94	14.79	16.64	110.9	221.9	332.8	443.8	554.7
36	.840	.68	.52	.36	.20	1.04	.88	.72	.56	10.4	20.8	31.2	41.6	52.0
37	.831	.66	.49	.32	.16	0.99	.82	.65	.48	9.9	19.7	29.6	39.5	49.3
38	.822	.64	.47	.29	.11	.93	.75	.58	.40	9.3	8.6	8.0	7.3	6.6
39	.813	.63	.44	.25	.07	.88	.69	.50	.32	8.8	7.6	6.3	5.1	3.9
86 40	1.804	3.61	5.41	7.22	9.02	10.82	12.63	14.43	16.24	108.2	216.5	324.7	433.0	541.2
41	.795	.59	.38	.18	8.98	.77	.57	.36	.16	7.7	5.4	3.1	30.8	38.5
42	.786	.57	.36	.14	.93	.72	.50	.29	6.07	7.2	4.3	21.5	28.6	5.8
43	.777	.55	.33	.11	.89	.66	.44	.22	5.99	6.6	3.2	19.9	6.5	3.1
44	.768	.54	.30	.07	.84	.61	.38	.14	.92	6.1	2.2	8.2	4.3	30.4
86 45	1.759	3.52	5.28	7.04	8.80	10.55	12.31	14.07	15.83	105.5	211.1	316.6	422.2	527.7
46	.750	.50	.25	7.00	.75	.50	.25	4.00	.75	5.0	10.0	5.0	20.0	5.0
47	.741	.48	.22	6.96	.71	.45	.19	3.93	.67	4.5	08.9	3.4	17.8	22.3
48	.732	.46	.20	.93	.66	.39	.12	.86	.59	3.9	7.8	1.8	5.7	19.6
49	.723	.45	.17	.89	.62	.34	.06	.78	.51	3.4	6.8	10.1	3.5	6.9
86 50	1.714	3.43	5.14	6.86	8.57	10.28	12.00	13.71	15.43	102.8	205.7	308.5	411.3	514.2
51	.705	.41	.11	.82	.53	.23	1.94	.64	.35	2.3	4.6	6.9	09.2	11.5
52	.696	.39	.09	.78	.48	.18	.87	.57	.26	1.8	3.5	5.3	7.0	08.8
53	.687	.37	.06	.75	.44	.12	.81	.50	.18	1.2	2.4	3.6	4.9	6.1
54	.678	.36	.03	.71	.39	.07	.75	.42	.10	0.7	1.3	2.0	2.7	3.4
86 55	1.669	3.34	5.01	6.68	8.35	10.01	11.68	13.35	15.02	100.1	200.3	300.4	400.5	500.7
56	.660	.32	4.98	.64	.30	9.96	.62	.28	4.94	99.6	199.2	298.8	398.4	498.0
57	.651	.30	.95	.60	.26	.91	.56	.21	.86	9.1	8.1	7.2	6.2	5.3
58	.642	.28	.93	.57	.21	.85	.49	.14	.78	8.5	7.0	5.5	4.0	92.6
59	.633	.27	.90	.53	.17	.80	.43	3.06	.70	8.0	5.9	3.9	1.9	89.9
86 60	1.624	3.25	4.87	6.50	8.12	9.74	11.37	12.99	14.61	97.4	194.9	292.3	389.7	487.2

Lat.	Latitude 86° to 87°—Meridional arcs.						Latitude 86°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 86° 30'		Value of 1'	Continuous sums of minutes from latitude 86° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
86 00	31.026			1861.56			0 1	129.9	0.0
1	6	1	31.03	.56	1	1861.6	0 2	259.7	0.1
2	6	2	62.05	.56	2	3723.1	0 3	389.6	0.2
3	6	3	93.08	.57	3	5584.7	0 4	519.4	0.3
4	6	4	124.11	.57	4	7446.3	0 5	649.3	0.5
86 05	31.026	5	155.13	1861.57	5	9307.8	0 6	779.2	0.7
6	6	6	186.16	.57	6	11169.4	0 7	909.0	0.9
7	6	7	217.18	.57	7	13031.0	0 8	1038.9	1.2
8	6	8	248.21	.57	8	14892.5	0 9	1168.7	1.5
9	6	9	279.24	.57	9	16754.1			
86 10	31.026	10	310.26	1861.57	10	18615.7	0 10	1298.6	1.9
11	6	11	341.29	.57	11	20477.2	0 15	1947.9	4.2
12	6	12	372.32	.57	12	22338.8	0 20	2597.2	7.5
13	6	13	403.34	.57	13	24200.4	0 25	3246.5	11.8
14	6	14	434.37	.57	14	26062.0	0 30	3895.8	17.0
86 15	31.026	15	465.40	1861.57	15	27923.5	0 35	4545.0	23.1
16	6	16	496.42	.58	16	29785.1	0 40	5194.3	30.1
17	6	17	527.45	.58	17	31646.7	0 45	5843.6	38.1
18	6	18	558.48	.58	18	33508.3	0 50	6492.8	47.1
19	6	19	589.50	.58	19	35369.8	0 55	7142.0	57.0
86 20	31.026	20	620.53	1861.58	20	37231.4	1 00	7791.2	67.8
21	6	21	651.55	.58	21	39093.0	1 05	8440.4	79.6
22	6	22	682.58	.58	22	40954.6	1 10	9089.6	92.3
23	6	23	713.61	.58	23	42816.2	1 15	9738.8	106.0
24	6	24	744.63	.58	24	44677.7	1 20	10387.9	120.6
86 25	31.026	25	775.66	1861.58	25	46539.3	1 25	11037.0	136.1
26	6	26	806.69	.58	26	48400.9	1 30	11686.1	152.6
27	6	27	837.71	.58	27	50262.5	1 35	12335.2	170.0
28	6	28	868.74	.58	28	52124.1	1 40	12984.2	188.4
29	6	29	899.77	.58	29	53985.7	1 45	13633.2	207.7
86 30	31.026	30	930.79	1861.58	30	55847.2	1 50	14282.2	228.0
31	6	31	961.82	.59	31	57708.8	1 55	14931.2	249.2
32	6	32	992.85	.59	32	59570.4	2 00	15580	271
33	6	33	1023.87	.59	33	61432.0	2 05	16229	293
34	6	34	1054.90	.59	34	63293.6	2 10	16878	315
86 35	31.026	35	1085.92	1861.59	35	65155.2	2 15	17527	338
36	6	36	1116.95	.59	36	67016.8	2 20	18176	361
37	6	37	1147.98	.59	37	68878.3	2 25	18825	384
38	6	38	1179.00	.59	38	70739.9	2 30	19474	407
39	6	39	1210.03	.59	39	72601.5	2 35	20123	430
86 40	31.027	40	1241.06	1861.59	40	74463.1	2 40	20772	453
41	7	41	1272.08	.59	41	76324.7	2 45	21421	476
42	7	42	1303.11	.59	42	78186.3	2 50	22070	499
43	7	43	1334.14	.59	43	80047.9	2 55	22719	522
44	7	44	1365.16	.59	44	81909.5	3 00	23368	545
86 45	31.027	45	1396.19	1861.59	45	83771.1	3 05	24017	568
46	7	46	1427.21	.60	46	85632.7	3 10	24666	591
47	7	47	1458.24	.60	47	87494.3	3 15	25315	614
48	7	48	1489.27	.60	48	89355.9	3 20	25964	637
49	7	49	1520.29	.60	49	91217.5	3 25	26613	660
86 50	31.027	50	1551.32	1861.60	50	93079.1	3 30	27262	683
51	7	51	1582.35	.60	51	94940.7	3 35	27911	706
52	7	52	1613.37	.60	52	96802.3	3 40	28560	729
53	7	53	1644.40	.60	53	98663.9	3 45	29209	752
54	7	54	1675.43	.60	54	100525.5	3 50	29858	775
86 55	31.027	55	1706.45	1861.60	55	102387.1	3 55	30507	798
56	7	56	1737.48	.60	56	104248.7	4 00	31156	821
57	7	57	1768.51	.60	57	106110.3	4 05	31805	844
58	7	58	1799.53	.60	58	107971.9	4 10	32454	867
59	7	59	1830.56	.60	59	109833.5	4 15	33103	890
86 60	31.027	60	1861.58	1861.60	60	111695.1	4 20	33752	913

Latitude 87° to 88°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
• /														
87 00	1.624	3.25	4.87	6.50	8.12	9.74	11.37	12.99	14.61	97.4	194.9	292.3	389.7	487.2
1	.615	.23	.84	.46	.08	.69	.31	.92	.53	6.9	3.8	90.7	7.6	4.5
2	.606	.21	.82	.42	.03	.63	.24	.85	.45	6.3	2.7	89.0	5.4	81.7
3	.597	.19	.79	.39	.79	.58	.18	.77	.37	5.8	1.6	7.4	3.2	79.0
4	.588	.18	.76	.35	.94	.53	.11	.70	.29	5.3	90.5	5.8	81.1	6.3
87 05	1.579	3.16	4.74	6.31	7.89	9.47	11.05	12.63	14.21	94.7	189.5	284.2	378.9	473.6
6	.570	.14	.71	.28	.85	.42	0.99	.56	.13	4.2	8.4	2.6	6.7	70.9
7	.561	.12	.68	.24	.80	.36	.92	.49	4.05	3.6	7.3	80.9	4.6	68.2
8	.552	.10	.65	.21	.76	.31	.86	.41	3.96	3.1	6.2	79.3	2.4	5.5
9	.543	.09	.63	.17	.71	.26	.80	.34	.88	2.6	5.1	7.7	70.3	2.8
87 10	1.534	3.07	4.60	6.13	7.67	9.20	10.74	12.27	13.80	92.0	184.0	276.1	368.1	460.1
11	.525	.05	.57	.10	.62	.15	.67	.20	.72	1.5	3.0	4.4	5.9	57.4
12	.516	.03	.55	.06	.58	.09	.61	.13	.64	0.9	1.9	2.8	3.8	4.7
13	.507	.01	.52	6.03	.53	9.04	.55	2.05	.56	90.4	80.8	71.2	61.6	52.0
14	.498	3.00	.49	5.99	.49	8.99	.48	1.98	.48	89.9	79.7	69.6	59.4	49.3
87 15	1.489	2.98	4.47	5.95	7.44	8.93	10.42	11.91	13.40	89.3	178.6	268.0	357.3	446.6
16	.480	.96	.44	.92	.40	.88	.36	.84	.32	8.8	7.6	6.3	5.1	3.9
17	.471	.94	.41	.88	.35	.82	.29	.77	.24	8.2	6.5	4.7	3.0	41.2
18	.462	.92	.38	.85	.31	.77	.23	.69	.15	7.7	5.4	3.1	50.8	38.5
19	.453	.91	.36	.81	.26	.72	.17	.62	3.07	7.2	4.3	61.5	48.6	5.8
87 20	1.444	2.89	4.33	5.77	7.22	8.66	10.11	11.55	12.99	86.6	173.2	259.8	346.5	433.1
21	.435	.87	.30	.74	.17	.61	10.04	.48	.91	6.1	2.1	8.2	4.3	30.4
22	.426	.85	.28	.70	.13	.55	9.98	.41	.83	5.5	1.1	6.6	2.1	27.7
23	.417	.83	.25	.67	.08	.50	.92	.33	.75	5.0	70.0	5.0	40.0	5.0
24	.408	.82	.22	.63	7.04	.45	.85	.26	.67	4.5	68.9	3.4	37.8	22.3
87 25	1.399	2.80	4.20	5.59	6.99	8.39	9.79	11.19	12.59	83.9	167.8	251.7	335.6	419.6
26	.389	.78	.17	.56	.95	.34	.73	.12	.50	3.4	6.7	50.1	3.5	6.8
27	.380	.76	.14	.52	.90	.28	.66	1.05	.42	2.8	5.7	48.5	31.3	4.1
28	.371	.74	.11	.49	.86	.23	.60	0.97	.34	2.3	4.6	6.9	29.2	11.4
29	.362	.72	.09	.45	.81	.17	.54	.90	.26	1.7	3.5	5.2	7.0	08.7
87 30	1.353	2.71	4.06	5.41	6.77	8.12	9.47	10.83	12.18	81.2	162.4	243.6	324.8	406.0
31	.344	.69	.06	.38	.72	.07	.41	.76	.10	0.7	1.3	2.0	2.7	3.3
32	.335	.67	4.01	.34	.68	8.01	.35	.69	2.02	80.1	60.2	40.4	20.5	400.6
33	.326	.65	3.98	.31	.63	7.96	.28	.61	1.94	79.6	59.2	38.7	18.3	397.9
34	.317	.63	.95	.27	.58	.90	.22	.54	.86	9.0	8.1	7.1	6.2	5.2
87 35	1.308	2.62	3.93	5.23	6.54	7.85	9.16	10.47	11.77	78.5	157.0	235.5	314.0	392.5
36	.299	.60	.90	.20	.50	.80	.10	.40	.69	8.0	5.9	3.9	11.8	89.8
37	.290	.58	.87	.16	.45	.74	9.03	.33	.61	7.4	4.8	2.3	09.7	7.1
38	.281	.56	.84	.13	.41	.69	8.97	.25	.53	6.9	3.8	30.6	7.5	4.4
39	.272	.54	.82	.09	.36	.63	.91	.18	.45	6.3	2.7	29.0	5.3	81.7
87 40	1.263	2.53	3.79	5.05	6.32	7.58	8.84	10.11	11.37	75.8	151.6	227.4	303.2	379.0
41	.254	.51	.76	5.02	.27	.53	.78	10.03	.29	5.3	50.5	5.8	301.0	6.3
42	.245	.49	.74	4.98	.23	.47	.72	9.96	.21	4.7	49.4	4.1	298.8	3.6
43	.236	.47	.71	.95	.18	.42	.65	.89	.13	4.2	8.3	2.5	6.7	70.9
44	.227	.45	.68	.91	.14	.36	.59	.82	1.05	3.6	7.3	20.9	4.5	68.1
87 45	1.218	2.44	3.65	4.87	6.09	7.31	8.53	9.74	10.96	73.1	146.2	219.3	292.4	365.4
46	.209	.42	.63	.84	.05	.26	.46	.67	.88	2.6	5.1	7.6	90.2	2.7
47	.200	.40	.60	.80	6.00	.20	.40	.60	.80	2.0	4.0	6.0	88.0	60.0
48	.191	.38	.57	.76	5.96	.15	.34	.53	.72	1.5	2.9	4.4	5.9	57.3
49	.182	.36	.55	.73	.91	.09	.27	.46	.64	0.9	1.8	2.8	3.7	4.6
87 50	1.173	2.35	3.52	4.69	5.87	7.04	8.21	9.38	10.56	70.4	140.8	211.1	281.5	351.9
51	.164	.33	.49	.66	.82	6.98	.15	.31	.48	69.8	39.7	09.5	79.4	49.2
52	.155	.31	.47	.62	.78	.93	.08	.24	.39	9.3	8.6	7.9	7.2	6.5
53	.146	.29	.44	.58	.73	.88	8.02	.17	.31	8.8	7.5	6.3	5.0	3.8
54	.137	.27	.41	.55	.69	.82	7.96	.10	.23	8.2	6.4	4.7	2.9	41.1
87 55	1.128	2.26	3.38	4.51	5.64	6.77	7.90	9.02	10.15	67.7	135.4	203.0	270.7	338.4
56	.119	.24	.36	.48	.60	.71	.83	8.95	10.07	7.1	4.3	201.4	68.5	5.7
57	.110	.22	.33	.44	.55	.66	.77	.88	9.99	6.6	3.2	199.8	6.4	3.0
58	.101	.20	.30	.40	.50	.61	.71	.81	.91	6.1	2.1	8.2	4.2	30.3
59	.092	.18	.28	.37	.46	.55	.64	.74	.83	5.5	31.0	6.5	62.0	27.6
87 60	1.083	2.17	3.25	4.33	5.41	6.50	7.58	8.66	9.75	65.0	129.9	194.9	259.9	324.9

Lat.	Latitude 87° to 88°—Meridional arcs.						Latitude 87°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 87° 30'		Value of 1'	Continuous sums of minutes from latitude 87° 00'		Longitude.	X	Y
° /	Meters.	"	Meters.	Meters.	'	Meters.	° /	Meters.	Meters.
87 00	31.027			1861.60			0 1	97.4	0.0
1	7	1	31.03	.60	1	1 861.6	0 2	194.9	0.1
2	7	2	62.05	.60	2	3 723.2	0 3	292.3	0.1
3	7	3	93.08	.61	3	5 584.8	0 4	389.7	0.2
4	7	4	124.11	.61	4	7 446.4	0 5	487.2	0.4
87 05	31.027	5	155.13	1861.61	5	9 308.0	0 6	584.6	0.5
6	7	6	186.16	.61	6	11 169.6	0 7	682.0	0.7
7	7	7	217.19	.61	7	13 031.2	0 8	779.5	0.9
8	7	8	248.22	.61	8	14 892.9	0 9	876.9	1.1
9	7	9	279.24	.61	9	16 754.5			
87 10	31.027	10	310.27	1861.61	10	18 616.1	0 10	974.3	1.4
11	7	1	341.30	.61	1	20 477.7	0 15	1 461.5	3.2
12	7	2	372.32	.61	2	22 339.3	0 20	1 948.6	5.7
13	7	3	403.35	.61	3	24 200.9	0 25	2 435.7	8.8
14	7	4	434.38	.61	4	26 062.5	0 30	2 922.9	12.7
87 15	31.027	15	465.40	1861.61	15	27 924.1	0 35	3 410.0	17.3
16	7	6	496.43	.61	6	29 785.7	0 40	3 897.1	22.7
17	7	7	527.46	.61	7	31 647.4	0 45	4 384.3	28.7
18	7	8	558.49	.61	8	33 509.0	0 50	4 871.4	35.4
19	7	9	589.51	.61	9	35 370.6	0 55	5 358.5	42.8
87 20	31.027	20	620.54	1861.61	20	37 232.2	1 00	5 845.5	50.9
21	7	1	651.57	.62	1	39 093.8	1 05	6 332.6	59.8
22	7	2	682.59	.62	2	40 955.4	1 10	6 819.7	69.3
23	7	3	713.62	.62	3	42 817.0	1 15	7 306.7	79.6
24	7	4	744.65	.62	4	44 678.7	1 20	7 793.7	90.6
87 25	31.027	25	775.67	1861.62	25	46 540.3	1 25	8 280.8	102.2
26	7	6	806.70	.62	6	48 401.9	1 30	8 767.8	114.6
27	7	7	837.73	.62	7	50 263.5	1 35	9 254.7	127.7
28	7	8	868.76	.62	8	52 125.1	1 40	9 741.7	141.5
29	7	9	899.78	.62	9	53 986.8	1 45	10 228.6	156.0
87 30	31.027	30	930.81	1861.62	30	55 848.4	1 50	10 715.5	171.2
31	7	1	961.84	.62	1	57 710.0	1 55	11 202.4	187.1
32	7	2	992.86	.62	2	59 571.6	2 00	11 689	204
33	7	3	1 023.89	.62	3	61 433.2	2 05	12 175.9	221
34	7	4	1 054.92	.62	4	63 294.8	2 10	12 662.8	238
87 35	31.027	35	1 085.94	1861.62	35	65 156.5	2 15	13 149.7	255
36	7	6	1 116.97	.62	6	67 018.1	2 20	13 636.6	272
37	7	7	1 148.00	.62	7	68 879.7	2 25	14 123.5	289
38	7	8	1 179.03	.62	8	70 741.3	2 30	14 610.4	306
39	7	9	1 210.05	.62	9	72 603.0	2 35	15 097.3	323
87 40	31.027	40	1 241.08	1861.62	40	74 464.6	2 40	15 584.2	340
41	7	1	1 272.11	.62	1	76 326.2	2 45	16 071.1	357
42	7	2	1 303.13	.63	2	78 187.8	2 50	16 558.0	374
43	7	3	1 334.16	.63	3	80 049.5	2 55	17 044.9	391
44	7	4	1 365.19	.63	4	81 911.1	3 00	17 531.8	408
87 45	31.027	45	1 396.21	1861.63	45	83 772.7	3 05	18 018.7	425
46	7	6	1 427.24	.63	6	85 634.3	3 10	18 505.6	442
47	7	7	1 458.27	.63	7	87 496.0	3 15	18 992.5	459
48	7	8	1 489.30	.63	8	89 357.6	3 20	19 479.4	476
49	7	9	1 520.32	.63	9	91 219.2	3 25	19 966.3	493
87 50	31.027	50	1 551.35	1861.63	50	93 080.9	3 30	20 453.2	510
51	7	1	1 582.38	.63	1	94 942.5	3 35	20 940.1	527
52	7	2	1 613.40	.63	2	96 804.1	3 40	21 427.0	544
53	7	3	1 644.43	.63	3	98 665.7	3 45	21 913.9	561
54	7	4	1 675.46	.63	4	100 527.4	3 50	22 400.8	578
87 55	31.027	55	1 706.48	1861.63	55	102 389.0	3 55	22 887.7	595
56	7	6	1 737.51	.63	6	104 250.6	4 00	23 374.6	612
57	7	7	1 768.54	.63	7	106 112.3	4 05	23 861.5	629
58	7	8	1 799.57	.63	8	107 973.9	4 10	24 348.4	646
59	7	9	1 830.59	.63	9	109 835.5	4 15	24 835.3	663
87 60	31.027	60	1 861.62	1861.63	60	111 697.2	4 20	25 322.2	680

Latitude 88° to 89°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
88 00	1.083	2.17	3.25	4.33	5.41	6.50	7.58	8.66	9.75	65.0	129.9	194.9	259.9	324.9
1	.074	.15	.22	.29	.37	.44	.52	.59	.66	4.4	8.9	13.3	17.7	22.1
2	.065	.13	.19	.26	.32	.39	.45	.52	.58	3.9	7.8	11.7	15.5	19.4
3	.056	.11	.17	.22	.28	.33	.39	.45	.50	3.3	6.7	10.0	13.4	16.7
4	.047	.09	.14	.19	.23	.28	.33	.37	.42	2.8	5.6	8.4	11.2	14.0
88 05	1.038	2.08	3.11	4.15	5.19	6.23	7.26	8.30	9.34	62.3	124.5	186.8	249.1	311.3
5	.029	.06	.09	.11	.14	.17	.20	.23	.26	1.7	3.4	5.2	6.9	8.6
6	.020	.04	.06	.08	.10	.12	.14	.16	.18	1.2	2.4	3.5	4.7	5.9
7	.011	.02	.03	.04	.05	.06	.07	.09	.10	0.6	1.3	1.9	2.6	3.2
8	1.002	2.00	3.01	4.01	5.01	6.01	7.01	8.01	9.01	60.1	120.2	180.3	240.4	300.5
88 10	0.993	1.99	2.98	3.97	4.96	5.96	6.95	7.94	8.93	59.6	119.1	178.7	238.2	297.8
11	.984	.97	.95	.93	.92	.90	.89	.87	.85	9.0	18.0	27.0	36.0	45.0
12	.975	.95	.92	.90	.87	.85	.82	.80	.77	8.5	16.9	25.4	33.9	42.4
13	.966	.93	.90	.86	.83	.79	.76	.73	.69	7.9	15.9	23.8	31.7	39.7
14	.957	.91	.87	.83	.78	.74	.70	.65	.61	7.4	14.8	22.2	29.6	37.0
88 15	0.948	1.90	2.84	3.79	4.74	5.69	6.63	7.58	8.53	56.9	113.7	170.6	227.4	284.3
15	.938	.88	.82	.75	.69	.63	.57	.51	.45	6.3	12.6	18.9	25.2	31.5
16	.929	.86	.79	.72	.65	.58	.51	.43	.36	5.8	11.5	17.3	23.1	28.8
17	.920	.84	.76	.68	.60	.52	.44	.36	.28	5.2	10.5	15.7	20.9	26.1
18	.911	.82	.73	.65	.56	.47	.38	.29	.20	4.7	9.4	14.1	18.7	23.4
88 20	0.902	1.80	2.71	3.61	4.51	5.41	6.32	7.22	8.12	54.1	108.3	162.4	216.6	270.7
21	.893	.79	.68	.57	.47	.36	.25	.15	.04	3.6	7.2	10.8	14.4	18.0
22	.884	.77	.65	.54	.42	.31	.19	.07	.796	3.1	6.1	9.2	12.3	15.3
23	.875	.75	.63	.50	.38	.25	.13	.00	.88	2.5	5.0	7.6	10.1	12.6
24	.866	.73	.60	.47	.33	.20	.06	.93	.80	2.0	4.0	6.0	8.0	10.0
88 25	0.857	1.71	2.57	3.43	4.29	5.14	6.00	6.86	7.72	51.4	102.9	154.3	205.7	257.2
25	.848	.70	.55	.39	.24	.09	.594	.79	.63	0.9	1.8	2.7	3.6	4.5
26	.839	.68	.52	.36	.20	.04	.88	.71	.55	50.4	100.7	151.1	201.4	251.8
27	.830	.66	.49	.32	.15	.498	.81	.64	.47	49.8	99.6	149.4	199.3	249.1
28	.821	.64	.46	.29	.11	.93	.75	.57	.39	9.3	8.5	7.8	7.1	6.4
88 30	0.812	1.62	2.44	3.25	4.06	4.87	5.69	6.50	7.31	48.7	97.5	146.2	194.9	243.7
31	.803	.61	.41	.21	.402	.82	.62	.42	.23	8.2	6.4	4.6	2.8	40.9
32	.794	.59	.38	.18	3.97	.76	.56	.35	.15	7.6	5.3	2.9	90.6	38.2
33	.785	.57	.36	.14	.93	.71	.50	.28	.707	7.1	4.2	41.3	88.4	5.5
34	.776	.55	.33	.10	.88	.66	.43	.21	6.98	6.6	3.1	39.7	6.3	2.8
88 35	0.767	1.53	2.30	3.07	3.84	4.60	5.37	6.14	6.90	46.0	92.0	138.1	184.1	230.1
35	.758	.52	.27	.03	.79	.55	.31	.06	.82	5.5	91.0	6.4	81.9	27.4
36	.749	.50	.25	3.00	.75	.49	.24	.599	.74	4.9	89.9	4.8	79.8	4.7
37	.740	.48	.22	2.96	.70	.44	.18	.92	.66	4.4	8.8	3.2	7.6	22.0
38	.731	.46	.19	.92	.65	.39	.12	.85	.58	3.9	7.7	1.6	5.4	19.3
88 40	0.722	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	43.3	86.6	130.0	173.3	216.6
41	.713	.43	.14	.85	.57	.28	4.99	.70	.42	2.8	5.6	28.3	71.1	3.9
42	.704	.41	.11	.82	.52	.22	.93	.63	.34	2.2	4.5	6.7	68.9	11.2
43	.695	.39	.09	.78	.48	.17	.86	.56	.26	1.7	3.4	5.1	6.8	08.5
44	.686	.37	.06	.74	.43	.12	.80	.49	.17	1.2	2.3	3.5	4.6	5.8
88 45	0.677	1.35	2.03	2.71	3.39	4.06	4.74	5.42	6.09	40.6	81.2	121.8	162.4	203.1
45	.668	.34	2.00	.67	.34	4.01	.67	.34	6.01	40.1	80.1	120.2	60.3	200.3
46	.659	.32	1.98	.63	.29	3.95	.61	.27	5.93	39.5	79.1	118.6	58.1	197.6
47	.650	.30	.95	.60	.25	.90	.55	.20	.85	9.0	8.0	7.0	5.9	4.9
48	.641	.28	.92	.56	.20	.84	.48	.13	.77	8.4	6.9	5.3	3.8	92.2
88 50	0.632	1.26	1.90	2.53	3.16	3.79	4.42	5.05	5.69	37.9	75.8	113.7	151.6	189.5
51	.623	.25	.87	.49	.11	.74	.36	.498	.60	7.4	4.7	2.1	49.4	6.8
52	.614	.23	.84	.45	.07	.68	.30	.91	.53	6.8	3.6	10.5	7.3	4.1
53	.605	.21	.81	.42	3.02	.63	.23	.84	.44	6.3	2.6	08.8	5.1	81.4
54	.596	.19	.79	.38	2.98	.57	.17	.77	.36	5.7	1.5	7.2	3.0	78.7
88 55	0.587	1.17	1.76	2.35	2.93	3.52	4.11	4.69	5.28	35.2	70.4	105.6	140.8	176.0
55	.578	.16	.73	.31	.89	.47	4.04	.62	.20	4.7	69.3	4.0	38.6	3.3
56	.569	.14	.71	.27	.84	.41	3.98	.55	.12	4.1	8.2	2.3	6.5	70.6
57	.560	.12	.68	.24	.80	.36	.92	.48	5.04	3.6	7.1	100.7	4.3	67.9
58	.551	.10	.65	.20	.75	.30	.85	.41	4.96	3.0	6.1	99.1	2.1	5.2
88 60	0.542	1.08	1.62	2.17	2.71	3.25	3.79	4.33	4.87	32.5	65.0	97.5	130.0	162.5

Lat.	Latitude 88° to 89°—Meridional arcs.						Latitude 88°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 88° 30'		Value of 1'	Continuous sums of minutes from latitude 88° 00'		Longitude.	X	Y
	Meters.	"	Meters.	Meters.	'	Meters.	° '	Meters.	Meters.
88 00	31.027			1861.63			0 1	65.0	0.0
1	7	1	31.03	.63	1	1 861.6	0 1	65.0	0.0
2	7	2	62.05	.63	2	3 723.3	2	130.0	0.0
3	7	3	93.08	.63	3	5 584.9	3	194.9	0.1
4	7	4	124.11	.63	4	7 446.5	4	259.9	0.2
88 05	31.027	5	155.14	1861.63	5	9 308.2	0 5	324.9	0.2
6	7	6	186.16	.63	6	11 169.8	6	389.8	0.3
7	7	7	217.19	.64	7	13 031.4	7	454.8	0.5
8	7	8	248.22	.64	8	14 893.1	8	519.8	0.6
9	7	9	279.24	.64	9	16 754.7	9	584.7	0.8
88 10	31.027	10	310.27	1861.64	10	18 616.4	0 10	649.7	0.9
11	7	1	341.30	.64	1	20 478.0	15	974.6	2.1
12	7	2	372.33	.64	2	22 339.6	20	1 299.4	3.8
13	7	3	403.35	.64	3	24 201.3	25	1 624.3	5.9
14	7	4	434.38	.64	4	26 062.9	30	1 949.1	8.5
88 15	31.027	15	465.41	1861.64	15	27 924.5	0 35	2 273.9	11.6
16	7	6	496.44	.64	6	29 786.2	40	2 598.8	15.1
17	7	7	527.46	.64	7	31 647.8	45	2 923.6	19.1
18	7	8	558.49	.64	8	33 509.5	50	3 248.4	23.6
19	7	9	589.52	.64	9	35 371.1	55	3 573.2	28.6
88 20	31.027	20	620.55	1861.64	20	37 232.7	1 00	3 898.1	34.0
21	7	1	651.57	.64	1	39 094.4	05	4 222.9	39.9
22	7	2	682.60	.64	2	40 956.0	10	4 547.6	46.3
23	7	3	713.63	.64	3	42 817.7	15	4 872.4	53.1
24	7	4	744.65	.64	4	44 679.3	20	5 197.2	60.4
88 25	31.027	25	775.68	1861.64	25	46 540.9	1 25	5 521.9	68.2
26	7	6	806.71	.64	6	48 402.6	30	5 846.7	76.5
27	7	7	837.74	.64	7	50 264.2	35	6 171.4	85.2
28	7	8	868.76	.64	8	52 125.9	40	6 496.1	94.4
29	7	9	899.79	.64	9	53 987.5	45	6 820.8	104.1
88 30	31.027	30	930.82	1861.64	30	55 849.1	1 50	7 145.5	114.3
31	7	1	961.85	.64	1	57 710.8	55	7 470.2	124.9
32	7	2	992.87	.64	2	59 572.4	2 00	7 795	136
33	7	3	1 023.90	.64	3	61 434.1	3 00	11 689	306
34	7	4	1 054.93	.64	4	63 295.7	4 00	15 580	544
88 35	31.027	35	1 085.95	1861.64	35	65 157.4	5 00	19 466	849
36	7	6	1 116.98	.64	6	67 019.0	6 00	23 347	1 223
37	7	7	1 148.01	.64	7	68 880.7	7 00	27 220	1 664
38	7	8	1 179.04	.64	8	70 742.3	8 00	31 085	2 172
39	7	9	1 210.06	.65	9	72 603.9	9 00	34 940	2 748
88 40	31.027	40	1 241.09	1861.65	40	74 465.6	10 00	38 785	3 391
41	7	1	1 272.12	.65	1	76 327.2	11 00	42 618	4 101
42	7	2	1 303.15	.65	2	78 188.9	12 00	46 438	4 878
43	7	3	1 334.17	.65	3	80 050.5	13 00	50 244	5 721
44	7	4	1 365.20	.65	4	81 912.2	14 00	54 035	6 631
88 45	31.027	45	1 396.23	1861.65	45	83 773.8	15 00	57 809	7 606
46	7	6	1 427.26	.65	6	85 635.5	16 00	61 565	8 647
47	7	7	1 458.28	.65	7	87 497.1	17 00	65 303	9 754
48	7	8	1 489.31	.65	8	89 358.8	18 00	69 021	10 925
49	7	9	1 520.34	.65	9	91 220.4	19 00	72 718	12 161
88 50	31.027	50	1 551.37	1861.65	50	93 082.1	20 00	76 393	13 462
51	7	1	1 582.39	.65	1	94 943.7	21 00	80 045	14 826
52	7	2	1 613.42	.65	2	96 805.4	22 00	83 672	16 254
53	7	3	1 644.45	.65	3	98 667.0	23 00	87 274	17 745
54	7	4	1 675.48	.65	4	100 528.7	24 00	90 849	19 298
88 55	31.027	55	1 706.50	1861.65	55	102 390.3	25 00	94 397	20 914
56	7	6	1 737.53	.65	6	104 252.0	26 00	97 915	22 591
57	7	7	1 768.56	.65	7	106 113.6	27 00	101 405	24 330
58	7	8	1 799.59	.65	8	107 975.3	28 00	104 863	26 129
59	7	9	1 830.61	.65	9	109 836.9	29 00	108 289	27 988
88 60	31.027	60	1 861.64	1861.65	60	111 698.6	30 00	111 683	29 906

Latitude 89° to 90°—Arcs of the parallel in meters.

Lat.	1"	2"	3"	4"	5"	6"	7"	8"	9"	1'	2'	3'	4'	5'
89 00	0.542	1.08	1.62	2.17	2.71	3.25	3.79	4.33	4.87	32.5	65.0	97.5	130.0	162.5
1	.532	.06	.60	.13	.66	.19	.73	.26	.79	1.9	3.9	5.8	27.8	59.7
2	.523	.05	.57	.09	.62	.14	.66	.19	.71	1.4	2.8	4.2	5.6	7.0
3	.514	.03	.54	.06	.57	.09	.60	.11	.63	0.9	1.7	2.6	3.5	4.3
4	.505	1.01	.52	2.02	.53	3.03	.54	4.04	.55	30.3	60.6	91.0	21.3	51.6
89 05	0.496	0.99	1.49	1.99	2.48	2.98	3.47	3.97	4.47	29.8	59.6	89.3	119.1	148.9
6	.487	.97	.46	.95	.44	.92	.41	.90	.39	9.2	8.5	7.7	7.0	6.2
7	.478	.96	.43	.91	.39	.87	.35	.83	.30	8.7	7.4	6.1	4.8	3.5
8	.469	.94	.41	.88	.35	.82	.29	.75	.22	8.2	6.3	4.5	2.6	40.8
9	.460	.92	.38	.84	.30	.76	.22	.68	.14	7.6	5.2	2.9	10.5	38.1
89 10	0.451	0.90	1.35	1.81	2.26	2.71	3.16	3.61	4.06	27.1	54.2	81.2	108.3	135.4
11	.442	.88	.33	.77	.21	.65	.10	.54	3.98	6.5	3.1	79.6	6.1	2.7
12	.433	.87	.30	.73	.17	.60	3.03	.47	.90	6.0	2.0	8.0	4.0	30.0
13	.424	.85	.27	.70	.12	.55	2.97	.39	.82	5.5	50.9	6.4	101.8	27.3
14	.415	.83	.24	.66	.08	.49	.91	.32	.74	4.9	49.8	4.7	99.6	4.5
89 15	0.406	0.81	1.22	1.62	2.03	2.44	2.84	3.25	3.65	24.4	48.7	73.1	97.5	121.8
16	.397	.79	.19	.59	1.99	.38	.78	.18	.57	3.8	7.7	71.5	5.3	19.1
17	.388	.78	.16	.55	.94	.33	.72	.10	.49	3.3	6.6	69.9	3.1	6.4
18	.379	.76	.14	.52	.90	.27	.65	3.03	.41	2.7	5.5	8.2	91.0	3.7
19	.370	.74	.11	.48	.85	.22	.59	2.96	.33	2.2	4.4	6.6	88.8	11.0
89 20	0.361	0.72	1.08	1.44	1.81	2.17	2.53	2.89	3.25	21.7	43.3	65.0	86.6	108.3
21	.352	.70	.06	.41	.76	.12	.46	.82	.17	1.1	2.2	3.4	4.5	5.6
22	.343	.69	.03	.37	.72	.06	.40	.74	.09	0.6	1.2	1.7	2.3	2.9
23	.334	.67	1.00	.34	.67	2.00	.34	.67	3.01	20.0	40.1	60.1	80.1	100.2
24	.325	.65	0.97	.30	.63	1.95	.28	.60	2.93	19.5	39.0	58.5	78.0	97.5
89 25	0.316	0.63	0.95	1.26	1.58	1.90	2.21	2.53	2.84	19.0	37.9	56.9	75.8	94.8
26	.307	.61	.92	.23	.53	.84	.15	.46	.76	8.4	6.8	5.2	3.6	92.1
27	.298	.60	.89	.19	.49	.79	.09	.38	.68	7.9	5.7	3.6	71.5	89.4
28	.289	.58	.87	.15	.44	.73	2.02	.31	.60	7.3	4.7	2.0	69.3	6.6
29	.280	.56	.84	.12	.40	.68	1.96	.24	.52	6.8	3.6	50.4	7.1	3.9
89 30	0.271	0.54	0.81	1.08	1.35	1.62	1.89	2.17	2.44	16.2	32.5	48.7	65.0	81.2
31	.262	.52	.78	.05	.31	.57	.83	.09	.36	5.7	1.4	7.1	2.8	78.5
32	.253	.50	.76	1.01	.26	.52	.77	2.02	.27	5.2	30.3	5.5	60.7	5.8
33	.244	.49	.73	0.97	.22	.46	.71	1.95	.19	4.6	29.2	3.9	58.5	3.1
34	.235	.47	.70	.94	.17	.41	.64	.88	.11	4.1	8.2	2.2	6.3	70.4
89 35	0.226	0.45	0.68	0.90	1.13	1.35	1.58	1.81	2.03	13.5	27.1	40.6	54.2	67.7
36	.217	.43	.65	.87	.08	.30	.52	.73	1.95	3.0	6.0	39.0	52.0	5.0
37	.208	.41	.62	.83	1.04	.25	.45	.66	.87	2.5	4.9	7.4	49.8	62.3
38	.199	.40	.60	.79	0.99	.19	.39	.59	.79	1.9	3.8	5.7	7.7	59.6
39	.190	.38	.57	.76	.95	.14	.33	.52	.71	1.4	2.7	4.1	5.5	6.9
89 40	0.181	0.36	0.54	0.72	0.90	1.08	1.26	1.45	1.63	10.8	21.7	32.5	43.3	54.2
41	.171	.34	.51	.69	.86	1.03	.20	.37	.54	10.3	20.6	30.9	41.2	51.4
42	.162	.32	.49	.65	.81	0.97	.14	.30	.46	9.7	19.5	29.2	39.0	48.7
43	.153	.31	.46	.61	.77	.92	.07	.23	.38	9.2	8.4	7.6	6.8	6.0
44	.144	.29	.43	.58	.72	.87	1.01	.15	.30	8.7	7.3	6.0	4.7	3.3
89 45	0.135	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	8.1	16.2	24.4	32.5	40.6
46	.126	.25	.38	.51	.63	.76	.88	1.01	.14	7.6	5.2	2.7	30.3	37.9
47	.117	.23	.35	.47	.59	.70	.82	0.94	1.06	7.0	4.1	21.1	28.2	5.2
48	.108	.22	.32	.43	.54	.65	.76	.87	0.98	6.5	3.0	19.5	6.0	32.5
49	.099	.20	.30	.40	.50	.60	.70	.79	.89	6.0	1.9	7.9	3.8	29.8
89 50	0.090	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	5.4	10.8	16.2	21.7	27.1
51	.081	.16	.24	.33	.41	.49	.57	.65	.73	4.9	9.7	4.6	19.5	4.4
52	.072	.14	.22	.29	.36	.43	.51	.58	.65	4.3	8.7	3.0	7.3	21.7
53	.063	.13	.19	.25	.32	.38	.44	.51	.57	3.8	7.6	11.4	5.2	19.0
54	.054	.11	.16	.22	.27	.32	.38	.43	.49	3.2	6.5	9.7	3.0	6.2
89 55	0.045	0.09	0.14	0.18	0.23	0.27	0.31	0.36	0.41	2.7	5.4	8.1	10.8	13.5
56	.036	.07	.11	.14	.18	.22	.25	.29	.32	2.2	4.3	6.5	8.7	10.8
57	.027	.05	.08	.11	.14	.16	.19	.22	.24	1.6	3.2	4.9	6.5	8.1
58	.018	.04	.05	.07	.09	.11	.13	.14	.16	1.1	2.2	3.2	4.3	5.4
59	.009	.02	.03	.04	.05	.05	.06	.07	.08	0.5	1.1	1.6	2.2	2.7
89 60	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0

Lat.	Latitude 89° to 90°—Meridional arcs.						Latitude 89°—Co-ordinates of curvature.		
	Value of 1"	Sums of seconds for middle latitude 89° 30'		Value of 1'	Continuous sums of minutes from latitude 89° 00'		Longitude.	X	Y
° ' "	Meters.	"	Meters.	Meters.	'	Meters.	° ' "	Meters.	Meters.
89 00	31.027			1861.65					
1	8	1	31.03	.65	1	1 861.7	0 1	32.5	0.0
2	8	2	62.05	.65	2	3 723.3	2	65.0	0.0
3	8	3	93.08	.65	3	5 585.0	3	97.5	0.0
4	8	4	124.11	.65	4	7 446.6	4	130.0	0.1
89 05	31.028	5	155.14	1861.65	5	9 308.3	0 5	162.4	0.1
6	8	6	186.16	.65	6	11 169.9	6	194.9	0.2
7	8	7	217.19	.65	7	13 031.6	7	227.4	0.2
8	8	8	248.22	.65	8	14 893.2	8	259.9	0.3
9	8	9	279.25	.65	9	16 754.9	9	292.4	0.4
89 10	31.028	10	310.28	1861.65	10	18 616.5	0 10	324.9	0.5
11	8	1	341.30	.65	1	20 478.2	15	487.3	1.1
12	8	2	372.33	.65	2	22 339.8	20	649.8	1.9
13	8	3	403.36	.65	3	24 201.5	25	812.2	3.0
14	8	4	434.39	.65	4	26 063.1	30	974.7	4.3
89 15	31.028	15	465.41	1861.65	15	27 924.8	0 35	1 137.1	5.8
16	8	6	496.44	.65	6	29 786.4	40	1 299.6	7.6
17	8	7	527.47	.65	7	31 648.1	45	1 462.0	9.6
18	8	8	558.49	.65	8	33 509.7	50	1 624.5	11.8
19	8	9	589.52	.65	9	35 371.4	55	1 786.9	14.3
89 20	31.028	20	620.55	1861.65	20	37 233.0	1 00	1 949.3	17.0
21	8	1	651.58	.65	1	39 094.7	05	2 111.7	20.0
22	8	2	682.60	.65	2	40 956.3	10	2 274.2	23.2
23	8	3	713.63	.65	3	42 818.0	15	2 436.6	26.6
24	8	4	744.66	.65	4	44 679.6	20	2 599.0	30.2
89 25	31.028	25	775.69	1861.65	25	46 541.3	1 25	2 761.4	34.1
26	8	5	806.71	.65	5	48 403.0	30	2 923.8	38.3
27	8	6	837.74	.65	6	50 264.6	35	3 086.2	42.6
28	8	7	868.77	.65	7	52 126.3	40	3 248.6	47.3
29	8	8	899.80	.65	8	53 987.9	45	3 411.0	52.1
89 30	31.028	30	930.83	1861.65	30	55 849.6	1 50	3 573.3	57.2
31	8	1	961.85	.65	1	57 711.2	55	3 735.7	62.5
32	8	2	992.88	.65	2	59 572.9	2 00	3 898	68
33	8	3	1 023.91	.65	3	61 434.5	3 00	5 846	153
34	8	4	1 054.94	.65	4	63 296.2	4 00	7 791	272
89 35	31.028	35	1 085.96	1861.65	35	65 157.8	5 00	9 735	425
36	8	5	1 116.99	.65	5	67 019.5	6 00	11 675	612
37	8	6	1 148.02	.65	6	68 881.2	7 00	13 612	832
38	8	7	1 179.05	.65	7	70 742.8	8 00	15 545	1 087
39	8	8	1 210.07	.65	8	72 604.5	9 00	17 473	1 375
89 40	31.028	40	1 241.10	1861.66	40	74 466.1	10 00	19 395	1 697
41	8	1	1 272.13	.66	1	76 327.8	11 00	21 312	2 052
42	8	2	1 303.16	.66	2	78 189.4	12 00	23 222	2 440
43	8	3	1 334.18	.66	3	80 051.1	13 00	25 126	2 862
44	8	4	1 365.21	.66	4	81 912.7	14 00	27 021	3 317
89 45	31.028	45	1 396.24	1861.66	45	83 774.4	15 00	28 908	3 805
46	8	5	1 427.27	.66	5	85 636.1	16 00	30 787	4 326
47	8	6	1 458.29	.66	6	87 497.7	17 00	32 656	4 880
48	8	7	1 489.32	.66	7	89 359.4	18 00	34 515	5 466
49	8	8	1 520.35	.66	8	91 221.0	19 00	36 364	6 084
89 50	31.028	50	1 551.38	1861.66	50	93 082.7	20 00	38 202	6 735
51	8	1	1 582.40	.66	1	94 944.3	21 00	40 028	7 417
52	8	2	1 613.43	.66	2	96 806.0	22 00	41 841	8 132
53	8	3	1 644.46	.66	3	98 667.7	23 00	43 643	8 878
54	8	4	1 675.48	.66	4	100 529.3	24 00	45 430	9 655
89 55	31.028	55	1 706.51	1861.66	55	102 391.0	25 00	47 204	10 463
56	8	5	1 737.54	.66	5	104 252.6	26 00	48 964	11 302
57	8	6	1 768.57	.66	6	106 114.3	27 00	50 708	12 172
58	8	7	1 799.60	.66	7	107 975.9	28 00	52 438	13 072
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